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Steubenville is not just an industrial center on the Ohio River, but the natural economic and trade center of a far reaching area. It dominates a rich agricultural territory, and a region which produces much of the Nation's iron and steel products.

Steubenville is justly proud of its efficiently managed Water Department which is called upon to supply the tremendous volume of water consumed by the mammoth industrial plants and its 36,000 citizens.

Pittsburgh Water Meters for many years have been relied upon to provide an equitable revenue to the city. Through universal metering marked reductions in pumping and filtration costs have been effected.

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MERCO NORDSTROM VALVE CO.
MAIN OFFICES PITTSBURGH, PA.
New York Columbia Chicago Memphis Kansas City Philadelphia Tulsa Houston Los Angeles Oakland

To Cities Whose Credit Is Sound:

45 Per Cent Grants of Federal Funds Available

AN exceptional opportunity is now afforded to municipal and county governments whose borrowing on taxing capacity can provide 55 per cent of the cost of new public works projects; *the remaining 45 per cent to be provided as an outright gift by the Federal Government.* Under the terms of such aid the President's recent stipulation that one man must be employed locally for each $1,100 or $1,200 applies only to the 45 per cent grant.

As this method of financing local public works outside of the man-year employment ruling does not appear to have been made clear in any of the official press releases from Washington, THE AMERICAN CITY sent a special inquiry on the subject to Administrator Hopkins. In reply, the following letter has been received under date of June 24 from Perry A. Fellows, Administrative Officer, Work Division:

"We are glad to advise you that the cost per man-year on projects which are financed by local bond issue and Federal grant on a 55-45 per cent basis, or on any other loan and grant arrangement, is figured only on that portion of the project expense which is from Federal funds. The cost per man-year of employment on any project is always determined on the expense to the Federal Government in furnishing this employment."

A study completed last month by the Division of Economics and Statistics of PWA revealed that the total average cost per man per year directly employed on the more than 4,000 projects was $2,132. Calculated on the basis of a grant of 45 per cent, the cost to the Government for such projects undertaken as part of the $4,000,000,000 works-relief program would be only $959.

Information for Sponsors of Works Progress Projects

ON June 19 Harry L. Hopkins, Works Progress Administrator, issued a "Preliminary Statement of Information for Sponsors of Works Progress Administration Projects." Printed copies are available through the local works progress administrations.

The statement stipulates that "only official groups may act as sponsors of projects, although non-official bodies such as boards of trade, clubs, and societies may cooperate unofficially with city, state, county or village officials, and state, district or local works progress administrators, in the origination of developments which offer definite plans of employment for persons on relief.

"Sponsoring agencies are expected to contribute materials, equipment, and services to the maximum amount possible, with the priority of the project depending in part on the amount of such contributions and to the extent to which they affect the proportion of labor costs to the total Federal funds required.

"Projects must be planned with relation to the number, ages, sex and occupational characteristics of persons on relief in the locality where the project would be executed, and to provide continuous work. No project will be approved covering work for which local funds are currently appropriated or work generally included in the normal governmental activities of the sponsoring authority or which would result in the displacement of regular employees.

"For the expediting of business the Works Progress Administration is setting up state, district or local offices, with district and local offices prepared to assist on district and local projects, with the state office dealing primarily only with state-wide problems."

Section 12, Item 8, of this circular is of special interest. It directs that: "City, county, and state planning agencies shall be consulted on all projects which affect plans and programs under the jurisdiction of such agencies. In all such cases the proposed project shall be submitted to the planning agency and its recommendations secured and entered under this item."

President Issues Works Progress Program Rules

BY Executive Order on June 24 President Roosevelt prescribed rules and regulations relating to methods of prosecuting projects under the Works Progress Program.

As laid down in the regulations, all projects must be prosecuted under one of the four methods—force account, fixed price contract, limited price contract and management contract. The method may be designated in the application for the allotment, but be subject to the approval of Works Progress Administrator Harry L. Hopkins, who may designate another method to be used.

On each job, by whatever method prosecuted, not fewer than ninety per cent of all employees, with some few possible exemptions, must be taken from relief rolls and be certified by the United States Employment Service. As defined in the regulations:

The force account method involves the employment and supervision of all persons employed on a project by the supervisory agency, which is defined as meaning the department, Federal agency, state, territory, possession, subdivision or agency thereof, municipality, the District of Columbia, or public bodies thereof, which conducts the project.

The fixed price contract method calls for awards based on competitive bidding involving the payment to the contractor of a fixed sum for the entire job or specified units, which shall cover all items of cost except materials, supplies and equipment which are to be supplied by the Government.

The limited price contract provides for awards based on competitive bidding calling for the payment of fixed sums for completed projects or specified units thereof, which will include all items of cost other than labor employed at the site of the project, and the cost of materials and equipment to be furnished by the Government.

On this type of contract the contractor must pay those employed on the job the wages fixed by the President for those taken off relief, for which payment the contractor will be reimbursed.

The management contract is to be awarded on the basis of competitive bidding on specifications requiring the contractor to administer, supervise and manage the project, provide all materials and equipment save such as the Government may provide, and pay all persons employed on the job wages fixed by the President for persons taken off relief, and be paid a fixed amount for supervision and management of the project and for the use of equipment plus all wage payments.

Every contractor on the job will have the right, subject to disapproval of the Works Progress Administration, to dismiss any employee or return any employee to the United States Employment Service for reclassification.

PWA Housing Division Reports Progress

AFTER overcoming a series of obstacles which handicapped operations at the start, the Housing Division of the Public Works Administration is now far advanced in its program to replace the discredited slums of the United States with modern, urban housing at low rents, A. R. Clas, Director of the Housing Division of PWA, reported last month to Administrator Harold L. Ickes.

Eighteen public housing projects were listed as being in advanced status:

Atlanta: Techwood—under construction: University—under construction

Indianapolis: Community Housing—construction contract accepted, site cleared

New York: Williamsburg—site under condemnation

Chicago: West Side—reduced site being acquired, condemnation pending, plans in preparation; South Park Gardens—condemnation pending, plans in preparation; Blackhawk Park—condemnation pending, plans in preparation

Cleveland: Cedar Central—construction contract accepted, site cleared; Outhwaite—title acquired, demolition pending; West Side—title acquired, demolition pending

Cincinnati: Basin Housing—site being acquired

Detroit: Title acquired—demolition pending

Montgomery: Thurman Street—ready for construction; Bell Street—title acquired, plans in preparation

Louisville: Condemnation pending, case in Circuit Court

Boston: Condemnation pending, plans in preparation

Milwaukee: Site acquired, plans in preparation

Nashville: Site acquired, plans in preparation

Limited dividend corporation projects on the PWA housing program include:

New York: Hillside Housing Corporation—first unit occupied; Boulevard Gardens—nearing completion

Philadelphia: Juniata Park Housing Corporation (Carl Mackley Houses)—occupied

Euclid, Ohio: Euclid Housing Corporation—14 homes completed, 19 under construction

St. Louis: Neighborhood Gardens Housing Corporation—approaching completion

Alta Vista: Housing Corporation—occupied

Raleigh, N. C.: Boyland Realty Company—under construction

TAX ACCOUNTING

Burroughs Machines make every phase of this work faster and simpler

Whether your accounting problems have to do with current or delinquent taxes—special assessments—billing and collecting—tax receipting—balancing tax collections and applying them to proper funds—or any other phase of municipal accounting—Burroughs can assist you.

For many years Burroughs has made an intensive study of governmental accounting. New machines, features, applications, have been developed to simplify and modernize this work.

Now especially, every local government needs and can keep more accurate, more available, more up-to-date records—with greater speed and ease—by taking advantage of these new developments.

Telephone the local Burroughs office. Without obligation on your part, a well-informed Burroughs representative will call and help you with your particular problems.

If you prefer, check the items below that interest you and mail the coupon direct to the Governmental Division of the Burroughs Adding Machine Company, Detroit, Michigan.

Burroughs

Governmental Division, Burroughs Adding Machine Company
Detroit, Michigan

Without obligation, send me complete information about the newest mechanical equipment for handling the accounting problems checked below:

Tax Accounting ☐ Budgetary Control ☐ Fund Accounting ☐ Stores Records ☐ Payroll and Check Writing ☐
Purchase and Payment Records ☐ Revenue and Expense Distribution ☐ School Board Accounting ☐
Municipal Utility Accounting ☐ Institutional Accounting ☐

Name _____ Title or Position _____

Address _____

Our Municipal Notebook

Mayors and Money

THERE sometimes comes a period in the lives of individuals or families when their interest in what to do with things becomes secondary to the grim business of devising means for obtaining them. Municipal governments are now passing through that period. One way to have money is not to spend so much of it. Another way is to spend enough money for modern equipment that reduces the costs of the services rendered and produces a better product in greater volume.

Nice Billboards

A PARK department official remarked that he wished this magazine would even more forcefully advocate the abolition of billboard advertising. Another man who happened to be present protested that the removal of the billboards would spoil a little game played by his small daughter and himself. When they were out driving together she would bet him that she could pick up more Sinclair oil signs that he could point out Fiske tire signs. Even though this game should become the rage, THE AMERICAN CITY would still regard this type of advertising as an affront to public taste and recreation.

Stop Signs

ONLY ten per cent of drivers stop when they come to a stop-street sign, according to Arnold H. Vey, State Traffic Engineer of New Jersey. Why is this so? Obviously because the use of these signs has been abused. They have been installed where SLOW or CAUTION or CROSS TRAFFIC is meant. Probably when stop signs were first installed they were observed; but familiarity with conditions where they were placed caused drivers to use their own judgment. It is one more piece of evidence of the good sense of calling things, places and situations by their right names. Everybody knows that a red light *means* stop. But the word "Stop" is just so much literature. Casper Milquetoast stops every time; but the hard-boiled eggs slow down, peer in both directions and swing into the X-TRAFFIC. Such a sign, by its very appearance, should place the driver on the alert and force its message on his attention. Philadelphia is experimenting, with what appears to be success, with neon stop signs, whose vivid red flashes are visible at 400 feet.

Profitable City Plants

THERE has been a renaissance of interest in municipal electric power plants. In times past such plants were established because no private or public-utility establishment was serving the town whose citizens desired electric lights and toasters, or because private rates were unconscionably high, or for political or demagogic reasons.

But the present is an economic age, the more so because of the recent depression. Somebody has said that in times of depression no idea is too crazy for consideration. It is also true that in such times many sound systems of economy receive a measure of consideration which would not be accorded them in opulent periods. Many private corporations have been fighting for life, some unsuccessfully. Life means revenues. Many municipal corporations also have found collections dull and new business nil. A number of them have turned to the municipal plant for fresh and earned revenues. From cities in states as widely separated as Texas, Wisconsin and New York this magazine has received earnest inquiries as to the revenue probabilities in this field. These inquiries are not camouflaged by the great rate question; these and other cities want to know whether a municipal plant would pay. If so, they may go into the business of manufacturing kilowatt-hours.

These inquiries for information are encouraging signs. When the word yardstick has been used long enough in connection with any activity, that activity or the men responsible for it tend to become self-conscious in the highest sense—they propose that the yardstick shall measure 36 inches on the dot. They know that if it does not, they will hear about it and the entire activity will fall into disrepute. Managers and officials of any municipal power enterprise that deserves to operate, want low costs, low rates, public support, and a reasonable surplus after all charges—including a deduction for taxes to the same amount as would be charged to a private enterprise of the same size. Those cities that are considering the acquisition or construction of a plant want to know whether or not it is likely to be a successful plant. They want no white elephant or other unpleasant comeback. They desire to add to their municipal services another public works that will be, in the words of Kenneth W. Marsh of Albany (see page 57), "a high type of service inexpensively performed."

Card Conscious

THE very term suggests modern business practice, and it is used by the Deputy Auditor of Cuyahoga County, Ohio, in connection with the transfer of the county's real-estate and assessment records from 105 tomes weighing up to 80 pounds onto some 1,390,000 cards. Office employees objected that cards might be lost; but the apostles of modernity not only cited the disappearance of a huge tax ledger in 1930 but also reminded that dollar bills are not lost to any embarrassing extent—so why lost cards? "Our problem," says Clark L. Simpson in a forthcoming issue of this magazine, "lay in making the clerks card conscious." He describes the new system with the enthusiasm of one who has emerged from a primeval swamp into the light of a new era. The results are not fewer clerks, but better contacts with the public and a larger volume of satisfactory work done.

Homemade vs. Boughten

WHEN a number of cities begin to make their own equipment in a given field, it is a sign that there is something out of kilter. For municipalities have the simplest and the most certain form of income. Cities consist of land and buildings and people. Only the people are mobile, and if some of them move away, they or somebody else will still own the real estate—which is taxed. If this does not provide enough money, other means are found, other taxes are levied. The municipal government must go on. There must be money to meet payrolls and bills. Consequently, a city does not have to make its own equipment. Nobody expects it to. Yet some municipalities attempt to manufacture or assemble fire apparatus—a dangerous and unwarrantable procedure unless outrageous prices are charged or inferior equipment is offered. Neither appears to be the case. There are different manufacturers selling various grades of equipment to fit every purse. What seems to be overlooked in this instance is the value of a manufacturer's guarantee. That should be something very useful for a city to have to point to in the event of apparatus or equipment failure. The same is true of traffic signs and signals, equipment which performs as responsible a function as fire trucks, hose, or street lamps. A manufacturer's guarantee of this equipment should be worth something to a city. Isn't it?

THOMASVILLE MODERNIZES

it's Water System.

UP-TO-DATE thinking is manifest in the water department at Thomasville, N. Car. Although a comparatively small city, it has long recognized the advantages of an elevated water supply in improving municipal service—domestic, industrial and fire protection. In recent improvements to the system, the elevated storage was greatly increased by the construction of a million-gallon Horton tank.

The evidence of modern trends is just as strong in the design of the new Thomasville tank as in the economic reasons for its construction. While selected primarily because it stores all the water within a shallow depth, this radial cone tank was carefully designed to present a pleasing appearance.

Ask our nearest office for information on modern tank installations and cost data for estimating purposes.

CHICAGO BRIDGE & IRON WORKS

Chicago.....2127 Old Colony Bldg.
New York.....3308-165 Broadway Bldg.
Cleveland.....2236 Rockefeller Bldg.
Detroit.....1501 Lafayette Bldg.
Philadelphia...1616 "1700" Walnut St. Bldg.
Boston.....1301 Consolidated Gas Bldg.
Birmingham.....1502 N. Fiftieth Street
Dallas.....1406 Dallas Athletic Club Bldg.
San Francisco.....1033 Rialto Bldg.
Houston.....2919 Main Street
Tulsa.....1625 Thompson Bldg.
Los Angeles.....1403 Wm. Fox Bldg.

Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.

Water Waste - Water Rents - Hard Water

Metered Water Too Expensive for City to Waste

UP to a certain point water appears to have little value; but beyond that imaginary line it becomes too expensive to waste. Until 1932, for example, when Rockville Center, N. Y., installed a fourth diesel unit, the plant took water from the mains for cooling the engines, paying for it at cost, and then discharged it into the sewer. But with the new 2,865-hp unit, it became evident that this simple method would be too expensive, so a cooling tower was provided in order to use the water over and over again. There is this same economic slant with domestic consumers on a metered basis. Just so long as the monthly bill does not exceed the minimum charge, all is well; but let the extra cents appear, and the hunt for the leak and the water-waster starts.

Collection of Water Rents from Outside Consumers in New York State

MANY cities face the problem of collecting for water delivered to consumers outside the corporate limits where the city has no police power. An investigation of this has recently been made by the New York State Bureau of Municipal Information covering a large group of New York State cities and villages.

Out of 74 cities which replied that they do supply water to individuals and others outside the corporate limits, 58 shut off the water when payment is not made on the date due. One reported that it had never had any trouble. North Tonawanda makes the first person on the line responsible for collection; Olean secures a lien on the property; Watertown requires that the user must have property within the city limits; Albion, Fredonia, Liberty and Perry all require cash deposits in advance. One city replies that they threaten to shut off the water, threaten to sue, and make a bluff about a lien on the property. Another village handles the difficulty by correspondence, but the water is never shut off.

Most of the cities report that they have suffered no losses and that the bills have all been paid. Others report moderate losses of about $100 a year, which are absorbed by the Water Department and written off the books each year. Scarsdale reported no losses in thirteen years. Most of the cities charge the loss to the profit-and-loss account or deduct it from income. Only five cities charge the losses to operating costs, and only one reports that it sets up a reserve for the unpaid water bills of non-resident consumers. That city, Elmira, follows this practice as good accounting, for all consumers.

A Step to Prevent Damage by Electrolysis of Pipes

AT its 1935 convention in Cincinnati, Ohio, The American Water Works Association, through its Committee on Electrolysis and Electrical Interference, adopted a resolution aimed to terminate the use of water services as ground connections for electrical services.

In 1920 the American Water Works Association sanctioned the attachment of protective ground connections from electrical supply systems to water pipes in the interest of public safety on the theory that these ground connections would not transmit stray electric current under normal operating conditions on the electrical system and therefore would not be detrimental to the water piping system or hazardous to water-works customers or employees. Since that time, however, there have been changes in electrical distribution so that water-pipe ground connections carry substantial amounts of stray current normally, and excessive amounts of stray current at times. Thus, the water piping system has become a current-carrying part of the electrical distribution system.

These stray currents trespassing on water pipes are decidedly objectionable to the operators of water-works pipe systems, because they constitute a hazard to the maintenance of the piping system as well as to the life and property of water-works customers and employees. At the present time there is a tendency toward the adoption of a system of wiring and electrical distribution which will increase the use of the electrical conductivity of house pipes and metal work as well as street mains and make them a necessary adjunct of the electrical distribution system, thereby reducing the investment in copper conductors.

Because water-works operators have as their primary duty the furnishing of a safe and continuous supply of water, and because the presence of stray electric current in water pipes or the use of water pipe systems as current-carrying parts of electrical distribution systems may seriously interfere with the primary function of the water-works system, the resolution was adopted by the Association after recommendation by the Board of Directors of the American Water Works Association revoking its previous approval or sanction of the practice of grounding electric light and power circuits on water pipes for protective or other purposes.

The Use of Activated Carbon at Cincinnati

MUSTY tastes of stagnation, and phenolic tastes readily noticeable in the untreated water, have been successfully removed by treatment with Nuchar at the Cincinnati, Ohio, water works. At first the carbon was applied to the entrance conduit of the coagulation basins at Cincinnati together with the coagulants, but speedier and more complete taste removal has been obtained by splitting the dose, about one-half going through the coagulation basins, and the other half directly to the filter influent.

Complaints cease with doses of from 18 to 22 pounds per million gallons, and doses of from 24 to 28 pounds yield a still more taste-free water. When we have been compelled to economize because of depleted stock, the treatment has been applied only during the day, filter operation being arranged so that all filters in service during the night shift had previously been impregnated with carbon applied during the preceding day.

—From "Highlights on the Cincinnati Filtration Plant," by Clarence Bahlman, Water Purification Supervisor.

Present Status of Licensing Water-Works Employees

AT the recent convention of the American Water Works Association, the Committee on Water Works Practice presented a report on the licensing of water-works employees in which it outlined the present status of licensing. New Jersey and Michigan have specific laws requiring registration of water purification plant operators. West Virginia, after observing the success of the venture in these two states, made use of a law which permits the Public Health Council of the state to issue regulations pertaining to the proper operation of filter plants. All licensing has been under these regulations, which have not been tested in the courts. The sentiment has been so strong for the licensing by both public and private companies that no difficulties have arisen in its administration.

The Southwest Section of the American Water Works Association has established a voluntary system of licensing which has proved very popular with the operators. All the regulations were drawn up by the Section, and the issuing of licenses is not under the direction of the State Department of Health.

In Ohio, a law, "Engineers and Surveyor's Registration Act," went into effect January 1, 1934. According to the interpretation of this Act it has been necessary for men in charge of water treatment plants in Ohio to apply for a "Professional Engineer's" license. The license board, in granting licenses for water plant operators, has issued a certificate to such operators as "Professional Engineers" in the branch of "water purification plant operation," "chemical engineers," "water-works operator," etc. Thus, many water-works men who are not engineers have been compelled to apply for and have been granted a license as engineers. The State Department of Health has no authority over the granting of such licenses to water-works operators, but has been consulted sometimes in reference to various applicants. This law is cited, not as an example to be followed, but as a practice to be avoided.

IN DEEP MUD, SAND, GUMBO

ROAD OR NO ROAD, THIS AMAZING NEW TIRE PULLS YOU THROUGH!

HERE'S a tire that makes its own road. It will pull your equipment through deep mud, sand, or over unimproved roads of any kind. It is the new Firestone Ground Grip Tire, built with a deeper, thicker and more rugged tread, with widely spaced self-cleaning bars of a new and tougher tread rubber.

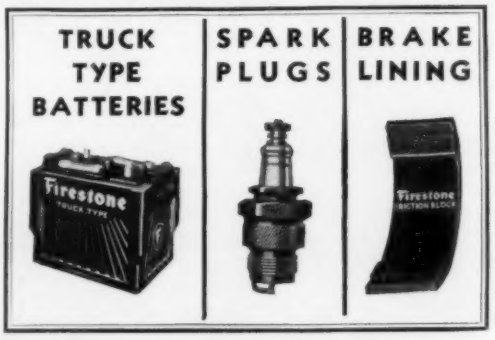
This amazing new tire that gives you super-traction is built with 54% more rubber in the tread for greater grip and longer wear. Two extra layers of Gum-Dipped High Stretch cords hold the tread securely to the body of the tire, making a single unit of great strength.

The new line of Firestone Ground Grip Tires includes sizes and types for your truck, cars and tractors. See your nearest Firestone Service Store or Firestone Tire Dealer today. Let him show you how the new Firestone Ground Grip Tire will give you greater traction —more dependable and economical service.

Listen to the Voice of Firestone—featuring Margaret Speaks, soprano, and the Firestone Choral Symphony, with William Daly's Orchestra—every Monday night over N. B. C.—WEAF Network

1 Deep, rugged and tougher tread — is self cleaning
2 Two extra layers of Gum-Dipped cords to hold massive non-skid tread to tire body
3 Gum-Dipped cord body gives stamina for strains of heavy pulling at low pressures
4 Continuous bars prevent bumping on paved roads — Greater traction no chains needed

AUTO SUPPLIES AT BIG SAVINGS



Firestone

© 1935, F. T. & R. Co.

Imhoff Tanks – Sewer Maintenance – Screening

Checking Imhoff Tank Foaming in Miami, Fla.

FOAMING of the Imhoff tanks at the Elgin Sanitary District, Ill., sewage treatment plant has occurred twice. The first time was when the plant was placed in operation, during the spring and summer of 1927, and the second period was in the spring of 1934. The first period of foaming was caused by the tanks being unseeded and a larger quantity of raw solids being fed to them than they could assimilate and still maintain an alkaline condition.

The second period was similar to the first in that the tanks had been out of service as digestion tanks. When they were placed back in service, they were seeded with the bottom sludge from the separate sludge digester. The digestion of this sludge had progressed so far that it was unfit for seeding purposes. Foaming followed and was not stopped until all sludge from the foaming tanks had been removed and the tanks again seeded with sludge, taken this time from the hoppers of the Imhoff tanks in operation.

It is well known that digestion of sludge is more complete in separate controlled sludge digesters than in Imhoff tanks, and it is believed this was the reason for the last period of foaming.

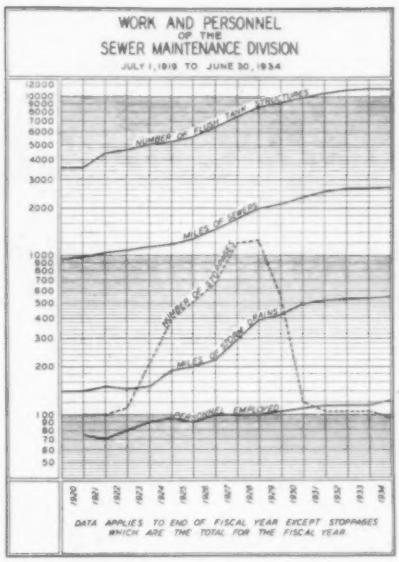
During the first period of foaming the pH was as low as 4.0, but by the addition of hydrated lime the pH was raised to a range of 6.8 to 7.2, after which the foaming stopped.

The only recurrence of foaming was the second period, when seeding was attempted with sludge that did not inoculate the tanks properly.—E. E. SMITH, District Superintendent.

Sewer Maintenance Operations in Los Angeles

THE Sewer Maintenance Division in Los Angeles, Calif., has charge of the maintenance and repair of all sanitary sewers, storm drains, culverts, flush tanks, sewage and storm-water pumping plants, and the Hyperion sewage screening plant and incinerator, the elimination of storm water from the sanitary sewer system, and the elimination of explosive gas and injurious industrial wastes from the sewer system.

The Division personnel of 122 persons for this city of 1,238,048 population consists of a superintendent of sewers, a supervisor of sewer maintenance, two junior civil engineers, two general clerks, four foremen, seven labor foremen, three truck drivers, one bricklayer, five flush-tank repair men, eighty-one laborers, a chief plant operator, four screening plant operators, and ten pumping plant operators. The work is performed by 24 field crews, equipped with trucks, working from five yards located at Venice, San Pedro and in three locations in the main part of the city. Each yard has a foreman in charge. The crews are constituted as follows: two, construction and repair; eleven, sewer maintenance; three, storm drain, culvert and catch-basins; two, trucks for picking up material cleaned out of catch-basins, etc.; one, bricklaying; five, field flush tanks; one, shop repair to flush tanks, etc. Each crew consists of from two to four men.


WORK AND PERSONNEL
OF THE
SEWER MAINTENANCE DIVISION
JULY 1, 1919 TO JUNE 30, 1934
NUMBER OF FLUSH TANK STRUCTURES
MILES OF SEWERS
NUMBER OF STOPPAGES
MILES OF STORM DRAINS
PERSONNEL EMPLOYED
DATA APPLIES TO END OF FISCAL YEAR EXCEPT STOPPAGES WHICH ARE THE TOTAL FOR THE FISCAL YEAR.

A GRAPH OF MAINTENANCE OF LOS ANGELES SEWERS

The sewer and storm-drain system consists of 2,673.52 miles of sewers and their 12,084 flushing structures, 544.0 miles of storm drains with approximately 21,870 catch-basins and several hundred culverts, 15 sewage pumping plants, a storm water pumping plant, and a sewage screening plant and incinerator.

The accompanying illustration shows the growth of the work of the Sewer Maintenance Division from 1920 through 1934. It should be noted that the slope of the curve for flush-tank structures, miles of sewers and miles of storm drains maintained by the Division is much steeper than the curve of personnel employed. It is greatly to the credit of the Division that the number of stoppages in sewers has been reduced so greatly.

LLOYD ALDRICH,
City Engineer.

Fine Screening at Miami, Fla.

TWO small fine screens are used on a portion of the concentrated downtown sewage of Miami. These screens remove about 4 cubic feet of trash per million gallons of the sewage flow, which amounts to about 10,000,000 gallons per day through these two screens.

The screenings are drained at the plant and then hauled to the city incinerator, which is located at approximately the center of population of the city. Speed of transportation of the screenings to the incinerator is most important to prevent nuisance. This method of incineration has proved entirely satisfactory in Miami.—C. S. NICHOLS, City Engineer.

Coarse Screening at Indianapolis, Ind.

WE operate coarse bar racks with 1¼-inch openings, and fine screens with 1/16-inch x 2-inch openings. These latter screens operate as concentrators, no solids being removed at the screen. Of the sewage arriving at the screen, two-thirds is allowed to pass through as clarified sewage and the remaining third, containing solids rejected by the screen, is passed to a sedimentation basin, from which the deposited sludge is pumped.

Coarse screenings have amounted to 0.58 to 1.2 cubic feet per million gallons of sewage. The sludge separated in clarification, as outlined above, amounts to from 1,707 to 2,199 gallons per million gallons of sewage treated, or from 803 to 1,094 pounds of dry solids per million gallons of sewage treated.

The average daily sewage flow is from 47.5 to 47.95 million gallons. All coarse screenings are incinerated, which is believed to be the best method of disposal. The sludge from the clarification plant is digested in open deep digestion pits with activated sludge.—C. K. CALVERT, Superintendent, Sanitary District of Indianapolis.

Chlorination of Sewage

CHLORINATION continues to be used in an increasing number of instances for the sterilization of sewage plant effluents discharging in the vicinity of bathing beaches or water-supply intakes. Its application for other purposes has been materially promoted by the data presented in the report of the Committee on Sewage Disposal of the American Public Health Association. This committee reports that where chlorine was applied sufficient to give residuals of from ¼ to ½ part per million after ten minutes, there might be expected a reduction in B.O.D. of at least two parts per million for each part per million of chlorine absorbed, which for normal dosages for domestic sewage would be equivalent to effecting a reduction in oxygen demand of from 15 to 35 per cent. This report also pointed out the beneficial effects upon downstream conditions of applying heavy dosage of chlorine to sewage. This latter effect of chlorination has been observed in the watercourses downstream from a number of plants, including Downers Grove, Ill., Fostoria, Ohio, and elsewhere.

—From a paper presented by L. R. HOWSON, of Alvord, Burdick & Howson, engineers, Chicago, Ill., before the International Association of Public Works Officials.

Is Your City Considering a New Incinerating Plant?

Investigate DECARIE before making any final decision!

For over 30 years DECARIE has been building municipal refuse incinerator furnaces of the steel water-jacketed type, using the "basket-grate" principle of predrying the refuse. More than 100 municipal installations testify to the efficiency of this distinctive principle.*

Today DECARIE is better prepared than ever before to give YOUR CITY the best of service. Engineers with long incinerator experience are ready to help you with your particular refuse disposal problem.

It will pay to investigate Decarie!

*Decarie also builds a refractory-lined incinerator furnace, so designed as to reduce the repairs usually experienced with brick-lined types to an absolute minimum.

—Write for Booklet—

DECARIE INCINERATOR CORP.

155 EAST 44TH STREET
NEW YORK

Cleaning Ponds—Airways—Street Maintenance

Lake Shore Cleaned with Scraper Bucket on Slackline in Wisconsin

MUCK jobs are ordinarily a source of grief because of the soupy or sticky nature of the material and the difficulty of getting at it with most types of excavators. A job of this sort that was handled without the usual trouble is shown in the accompanying illustration. Here a stretch of lake shore about one-half mile long was cleaned out successfully with a Sauerman scraper bucket operated as a slackline.

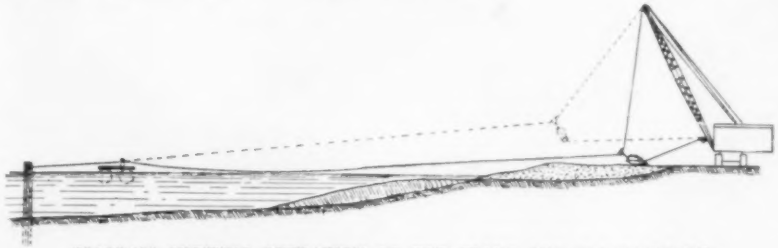


DIAGRAM SHOWING OPERATION OF THE CRANE AND SLACKLINE BY G. W. THAXTER AT PADDOCK LAKE, WIS.

This work was done by G. W. Thaxter at Paddock Lake in lower Wisconsin and consisted of cleaning out a foot or so of muck and water-lily and cattail roots from the lake bottom for a distance of about 150 feet out from shore, and piling the spoil around the bank to dry out, thus building up the shore line as well as improving the lake bottom.

The scraper was operated by a gasoline crane, which served both as a power unit for pulling the cables and as a movable head tower for shifting the operation along the shore. The track cable was attached at the head end to the top of the crane boom, and at the outer end to a tail tower on a raft. In operation, the track cable was slacked off while the scraper dug its load and dragged it forward to the spoil pile in the ordinary way; then the cable was tightened so as to lift the bucket up from the pile and allow it to slide down this track to the digging point.

So many inquiries have been received by THE AMERICAN CITY from readers who wish to perform similar jobs on reservoirs and in parks that we are pleased to print this text for their benefit.

Air Lines Serve Directly 43% of Population and 1,506 Cities

OF the 122,775,046 persons in the United States (1930 census), 43 per cent, or 53,751,593, live in areas which are directly served by scheduled air lines, according to a survey by the Bureau of Air Commerce, of the Department of Commerce. Three-fourths of the nation's metropolitan districts are served directly. The 26,377 miles of domestic air routes are so distributed that they touch 71 of the 96 major population centers.

The total number of cities served is a much larger figure—1,506. Of these, 1,380 are included in the metropolitan districts, and 126 are cities which are not parts of metropolitan districts. The scheduled air lines use 206 of the 1,203 municipal and commercial airports in the United States. In many cases a single airport serves a number of cities and towns.

Property Owners Share Cost of Dust Treatment

PROPERTY owners in Battle Creek, Mich., are again this year sharing the cost of treating streets with calcium chloride for dust prevention, according to the Battle Creek *Engineer-News*.

Since 1926, from 6 to 10 miles of streets in Battle Creek have been treated with calcium chloride each summer under an arrangement by which the property owners along the streets help pay the cost. Owing to a limited budget, the rates this year have been increased over last year when the city paid approximately two-thirds of the cost. The rates now in effect are $3.00 per rod of frontage for the full width of the street, or $1.50 per rod for each side of the street, which will pay the entire cost according to last year's records.

For this amount the city makes a minimum of two applications of calcium chloride, and three if necessary, during the summer. For a three-rod lot, this amounts to $4.50 if property owners on both sides of the street agree to share the cost.

Maintaining Secondary Roads

GRAVEL, slag, stone, and cinder roads must be dragged regularly unless they have had a bituminous treatment. Some of the less important roads may not require more than one dragging a month, while the most important ones may require three or four draggings a week.

A multiple-blade maintainer, pulled by a tractor, is the most suitable equipment for this work. Small road drags and power graders and truck scrapers are used to augment the maintainers during certain seasons when extra work is necessary. A light resurfacing of a fine gravel is required from time to time to replace the material worn out by traffic.

Paved road surfaces require constant attention. Holes which develop must be broken out and patched. Settled places are brought back to grade by forcing mud under the slabs. Expansion joints and contraction cracks must be well sealed with bituminous material to prevent serious damage to the pavement from water and ice.

Neglect of this will soon make more expensive repairs to the pavement necessary. The use of a bituminous pre-mix has proved very satisfactory for the repair of small holes and depressions. A portable asphalt plant is now used for the mixing of this material, by Wayne County, Mich. This has resulted in considerable saving compared to previous methods.

LEROY C. SMITH,
Engineer-Manager, Board of Wayne County Road Commission.

Elevating Grader Working in City Street

RIPPING UP AN OLD ASPHALT AND COBBLESTONE STREET IN DENVER, COLO., WITH A CATERPILLAR 48 ELEVATING GRADER
The Bertrand Construction Co. used trucks to haul away the material

Reduce FALSE ALARMS with NEW GAMEWELL ARRESTOLARM

FALSE ALARMS from fire alarm boxes can be reduced most effectively by having a local warning signal sound simultaneous to the operation of the box. The loud and distinctive warning shriek of the new ARRESTOLARM accomplishes just this — it attracts the attention of police, passers-by and local residents to the box so quickly that the person operating the box cannot escape, at least not without being identified for apprehension later.

The ARRESTOLARM Signal is the most practical device now available for reducing false alarms. It is efficient, low in price, economical to install and costs nothing to maintain. Its mechanical movement requires no expensive connection to electrical power lines. Furthermore, it does not discourage the use of fire alarm boxes for legitimate alarms either by trapping the person sending in the alarm or by complicating the method of operating the box.

The ARRESTOLARM Signal is attractive—both in design and finish. Its intermittent warning signal is emitted from a well protected horn located in the back of the unit. The complete device is weather-proof, with non-corrosive parts used throughout. And, it cannot interfere with the operation of the box mechanism in any way.

Try out the ARRESTOLARM Signal on a few of your boxes which are operated most frequently for false alarms. A trial will convince you of its value. Shall we send you a copy of our descriptive bulletin A3-1?

THE GAMEWELL COMPANY

Newton, Massachusetts

Public Safety

Use of 1½-Inch Hose in Small-Town Fire Departments

By **W. W. STEPHEN**

Chief, Fire Department, Swann Chemical Co., Anniston, Ala.

THE use of 1½-inch hose in extinguishing moderate fires and in overhauling larger blazes has for many years been a widely adopted and standard practice in city fire departments, but many small-town fire brigades have not yet adopted this size hose, the advantages of which are:

1. Water damage reduced.
2. Where street mains are small and water is insufficient.
3. Where the man-power is considerably reduced, the operation of 1½-inch hose may be the means of averting serious loss.

Several incidents from the writer's experience illustrate these advantages.

Case 1. The Fire Department in a small town was called before daylight to a large two-story brick-and-joist furniture store. The building was charged with smoke, which was coming out of every opening and crevice. The location of the fire was not at first apparent. The hose companies stood by with charged lines while truck-company details opened doors at front and rear. The officer in charge entered the building, crawling along the floor, and found fire coming up from under the stairway that led from the first floor down into the basement. Coming back out, he had a leader 1½-inch line coupled to the nozzle of a 2½-inch hose at the front door and, crawling back into the building, he was able to reach the fire and extinguish it with a limited amount of water.

Case 2. The fire had involved a small frame shingle-roof suburban dwelling situated in the middle of a long row of closely spaced similar structures. One long hose line from a 4-inch main was available. Each adjoining house next to the fire was beginning to burn, and it looked very much as if the fire must necessarily get away on one side. By using a siamese connection, the 2½-inch line was divided into two lines, but it was seen that the resulting streams would not save the exposed buildings, and no pumper was available to raise the pressure. Leader lines of 1½-inch hose were coupled to the nozzles on the 2½-inch hose lines, and with these streams plus hard work and minus wind, this small department was able to save two-thirds of the value of the two houses adjoining the one that was totally destroyed.

Case 3. The fire had started in the first floor of a two-story brick-and-joist clothing store and had involved both floors when discovered late at night. Two-story buildings of the same construction were on both sides. The fire had gone through the unstopped wall openings of the building to the north and had involved a part of the second floor and loft of this structure. The fire had gotten into the loft of the building to the south, but did not have very great headway here. The Fire Department was operating four lines of hose in the main building and was knocking out the fire there. Three lines were being operated in the second floor of the north buildings and were gaining.

A single hose line was available for use in the loft over the building on the south side of the fire, with only two men, already exhausted from smoke exposure, to handle it. It was necessary to pull down part of the ceiling in every room and move the line rapidly from one room to another and back again many times. The two men in this building soon became unable to move the heavy 2½-inch line quickly enough. A leader line of 1½-inch hose was coupled to the nozzle of the larger line, and the hose men were then able to move it around and knock the fire out as it kept on coming into this building through unstopped wall openings. This smaller line thus finally extinguished the fire in this south building, while the larger lines finished up the adjoining structures after the middle one was gutted and the second floor on the north side badly damaged.

Each of these fires teaches a special lesson. In the first one the use of 1½-inch hose prevented a considerable amount of water damage. In the second, the amount of water available could have been divided effectively for use on two houses only by employing 1½-inch hose, and on this occasion it most certainly prevented the loss of several buildings. In the third case the use of 1½-inch hose in the building on the south side of the fire enabled the men on duty there to handle the situation without being aided by reinforcements from either of the other two buildings where every man and every hose line was needed.

A very effective combination of apparatus is a large water tank carried on a pumper chassis, with two lines of 1½-inch hose and possibly a booster line supplied by the pump. Chief Monro of the Savannah Department constructed a piece of apparatus on this plan several years ago. In showing it to the writer, he stated that it was first at many fires, could get two streams going almost instantly, and could then be supplied by a hose line laid by other apparatus before the large water tank was exhausted.

The use of 1½-inch hose, as is the case with every other earthly thing, has its limitations. It should be backed up with larger hose, and in the case of a leader line the large hose line should be laid with enough slack to reach any point of the fire.

The Crime Net

COORDINATION of all state, county and municipal police communications systems is the objective of the New Jersey Crime Commission. One recommendation is that each county equip for thorough radio coverage. Bergen County has done it, coordinating 70 police departments. Other states interested in coordinated systems are Ohio, Michigan, Illinois, Minnesota, North Carolina, Iowa. Tentative plans of the U. S. Bureau of Investigation, according to *Police Chief's News Letter*, call for a powerful broadcasting station in Washington.

Motor-Vehicle Inspection

THE Memphis experiment in compulsory motor-vehicle inspection by the city has been followed by Des Moines, Evanston, Denver, Youngstown, Dayton, El Paso and Portland, Ore., while Knoxville, Cincinnati, Chicago, Kansas City, Seattle and Rochester institute voluntary safety lines. At Knoxville, says *U. S. Municipal News*, only 55 of the first 400 cars were in good condition, and 100 of them were actually unsafe.

Golden Anniversary

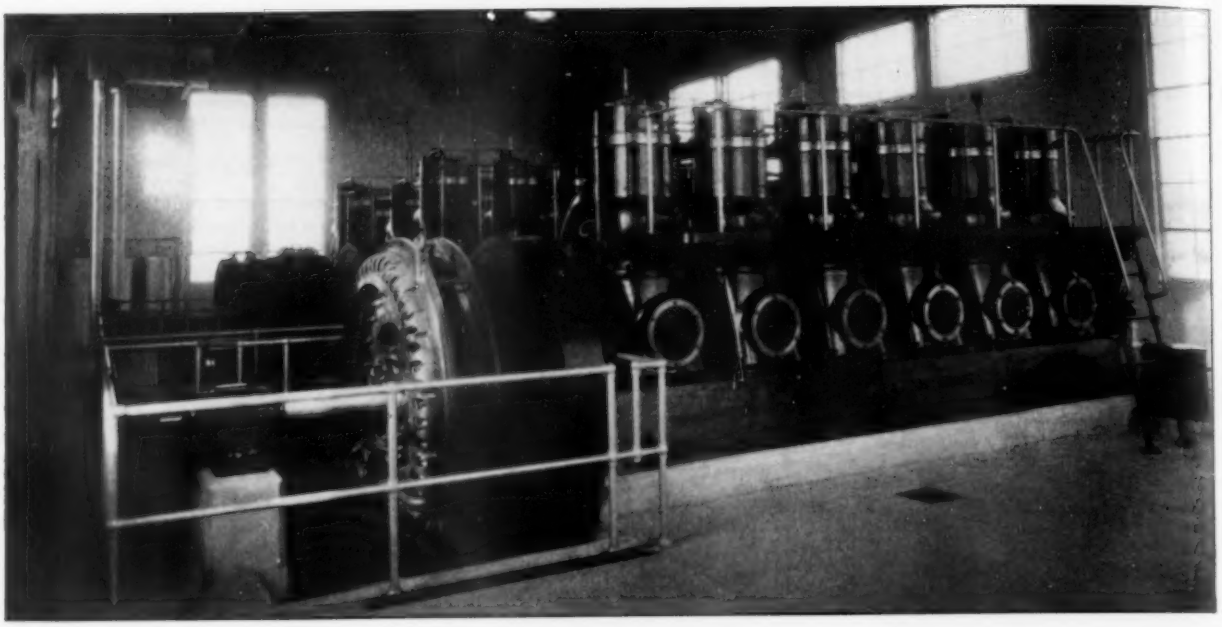
WILLIAM CRANE, first and only city electrician and superintendent of fire alarm of Erie, Pa., is rounding out 50 years of service.

Euclid's V-8 Fighter

THE men of the Euclid, Ohio, Fire Department have fitted a new Ford V-8 chassis with storage compartments, running-boards, fenders, lights, tire racks. "The truck," says Chief Ernest Earick, "carries two 35-gallon soda and acid chemicals, 800 feet 2½-inch hose, one 20-foot extension ladder, one 12-foot roof ladder, two 1-inch lines, inhalator, smoke masks." The truck has been in service four months. It has been fitted with dual wheels.

Ladder at Cambridge, Mass.

CAMBRIDGE has a hydro-mechanical aerial ladder truck which Peter Pirsch & Sons Co., Kenosha, Wis., says is "the only 100 per cent all powered one-man-controlled job built in this country."



CALIFORNIA, MISSOURI - A PWA PROJECT

Profits WITH F-M DIESELS

Engine room of the California, Mo., municipal plant. In the foreground, an F-M six-cylinder 420-hp. Model 32-14 Diesel Engine generating unit. Two 350-hp. units of similar design are in the background.

Although the population of California, Missouri, is only 2,384, it has won its fight to keep its power profits at home.

First Missouri town to obtain a PWA loan for the construction of a municipal power and light system, it recently completed its splendid new plant, despite vigorous opposition from the existing utility.

Test runs of the three F-M Diesels already show fuel consumption well under the contract guaranty—an additional saving which will be instrumental in retiring the plant's obligations. Added to this saving in fuel, a profit of $40,000 to $45,000 is expected

• • •

from the yearly plant operation—despite free current furnished to the city for street lighting and water pumping.

If your city, no matter how small its population, is anxious to rid itself of outside power domination . . . if it is anxious to keep its profits at home . . . get the full story on F-M Diesels at once. Address Fairbanks, Morse & Co., 900 S. Wabash Ave., Chicago, Ill. 32 branches at your service throughout the United States.

Pioneer Designers and Manufacturers of POWER, PUMPING AND WEIGHING EQUIPMENT 105 Years

FAIRBANKS-MORSE

DIESEL ENGINES

JULY, 1935

Vol. L, No. 7

The American City

470 Fourth Avenue
New York

35 Cents, $2 a Year

Police Radio Service Today

The General Situation as Defined by the Federal Communications Commission

THE number of frequencies available for radio transmission for both states and municipalities in the whole of North America is small, so the Federal Communications Commission decided that the entire country should be divided into zones and that all cities within a zone should use the same frequency. In this way it is possible to duplicate frequencies in distant zones and at the same time provide for an efficient system of operation within each zone.

There is a belief, says the Commission, on the part of some police administrations that a separate frequency should be assigned to each municipality. It is pointed out that with only a few frequencies available, such a system not only would be impractical but could not possibly be as efficient as the zone system of allocation. For example, in one metropolitan area there are 19 cities located in 30 districts, nearly all of which are within 20 miles of the center of the district. Therefore, if a different frequency were assigned to each municipality, the adjacent police departments would lose the advantage of being notified of crimes committed in neighboring cities, with a consequent delay in the apprehension of criminals who succeeded in making their escape from one city to another.

Cities in such areas are encouraged to organize the metropolitan district type of radio service. To do this, it is necessary for some one city in the area to take the initiative and impress upon the police departments the necessity of all cities' cooperating in the establishment of a single system.

The metropolitan area type of service may be established in several ways. All the cities within an area may enter into contracts providing for mutual use and support of one radio station; the various cities could enter into a partnership and designate one licensee who would be responsible for the operation of as many radio stations as may be required to serve properly the entire area; or two or more of the cities may each establish an independent station to give primary service to specific portions of the metropolitan area and enter into an agreement as to the rendering of cooperative service over the whole area and as to priority in the handling of calls originating in the various districts.

It is important that if a metropolitan area type of service is contemplated, the city making application to the Commission for authority to erect a station should forward with the application certified copies of the contracts involved in the establishment of the system. The agreement should show that the applicant is required to furnish police radio service to all subscribing municipalities without discrimination, and that these municipalities agree to accept the service and not request the Commission to grant them independent transmitting facilities.

The Commission's plan must provide for the granting of radio facilities to every police department, regardless of whether or not it may desire radio service at the present time. This latter aspect is often overlooked by applicants when applying for facilities. The fact that no other city in the vicinity of the applicant's city desires immediate radio service cannot be accepted as proof that a neighboring city will not subsequently apply for radio service. Therefore, exceptions to the rules cannot be authorized.

In the interest of reduction of interference, an allocation of power based on population was selected in preference to an allocation based on the area to be served. Municipalities having large population need more power than those of less populous areas because of the greater attenuation of the radiated energy due to building construction.

The amount of power that may be licensed a municipal police station is specified in Rule 329. Where two or more cities desire to cooperate, or when one city serves a number of municipalities, the power which may be authorized is computed on the basis of population of the entire area to be served.

It is believed that the best service for state police communication may be rendered by the installation of a number of stations of relative low power rather than by the installation of a single or a very few high-powered transmitters. Since state police frequencies are shared among states, the Commission as a matter of policy has not authorized powers for this class of stations in excess of 1,000 watts night and 5,000 watts sunrise to sunset.

In many cases, cities desire to install a police transmitter capable of serving the metropolitan area, and to make the installation at once with a view ultimately to furnishing service to mobile units in contiguous municipalities. The construction of such a station may be authorized, pending a conclusion of arrangements between the applicant and the police officials in surrounding municipalities.

In the event that the amount of power allocated is insufficient to afford reliable coverage over the desired area,

the Commission will, upon proper showing being made, authorize the use of additional transmitters of the same or less power. The city of Chicago, for example, now operates three 400-watt transmitters; the city of New York, one 500-watt and two 400-watt transmitters; and the city of Detroit, two 500-watt transmitters. In each case it is possible to provide efficient communication and at the same time limit the power on the particular frequency so that it can be duplicated for use in other zones. Where more than one transmitter is installed, only one transmitter is required for local alarms, and two or more transmitters in turn when the alarm is general in nature.

Without and With Benefit of Radio at Evansville, Indiana

Roy E. McConnell, Chief Engineer, Police Department, Evansville, Ind., asked by the Western Electric Co., to give before and after figures on the apparent value of the new two-way system inaugurated there on January 8, 1935, produced the following statistics of crimes reported during the first five months of 1934 (before) and of 1935:

	First Five Months 1934	1935	Per Cent Change
Robbery	31	18	—42
Burglary	128	113	—12
Grand larceny	15	24	+60
Petit larceny	340	300	—12
Auto theft	205	147	—28
	719	602	—17

In addition to this reduction in the number of crimes taking place in Evansville this year, there has been a heavy increase both in the number of arrests and in the percentage of these arrests to the crimes committed in the first five months.

There were 134 arrests in 1934, or in 19 per cent of the crimes.

There were 179 arrests in 1935, or in 30 per cent of the crimes.

Says Mr. McConnell: "There has been a reduction of 117 criminal cases this year with an increase in arrests of 60 per cent. A decrease in crime of 17 per cent is shown by this report."

Handling a Call

A citizen calls the police department by telephone. This call comes direct from the telephone operator at the main telephone switchboard, who switches the call to the police dispatcher. The dispatcher then determines which car is to be sent to the scene of the alarm and just what order should be given to the car. He then calls for the transmitter over his talking circuit and gives his orders over the order circuit and through the radio transmitter direct to the car. These orders are received by all the automobiles in the streets, the precinct stations, or other units having radio receivers, thus informing all cars of the movements of any others. The car, upon receiving its orders, immediately proceeds to the scene of the trouble. The car in adjacent territory will endeavor to cruise near the territory boundary in order to be ready to handle a second emergency call from that territory or a call from its own. As soon as the car sent to an emergency completes its work, one member of the crew telephones back to the radio station and the car is ready for future service.

The same high-quality speech transmission should not be expected of police radio as of broadcasting. In some seasons of the year, and during certain times of the day, particularly at night, police announcements from municipalities in one zone may be heard at a location where the frequency is used in another zone. It has been found that this seldom leads to confusion and, in fact, gives the officer in the car constant assurance that his receiver is operating properly.

The Commission has not as yet allocated permanently any of the frequencies above 30,000 kilocycles to any radio service within the continental United States for commercial or police purposes.

While it is believed that in any permanent allocation of the frequencies above 30,000 kilocycles, certain frequencies will be allocated to the police service, the exact position of the police frequencies in the spectrum has not been definitely determined.

The frequencies upon which the general experimental stations are authorized to communicate as municipal police stations are 30,100; 33,100; 37,100; and 40,100 kilocycles. Municipalities may request only one or all of these frequencies. In order to determine which of these frequencies is best suited for the needs of a particular municipality, it is believed that all interests will be better served by requesting all of the frequencies in lieu of one or two.

It is good engineering practice for each municipality to conduct a field-strength survey on both the medium and the ultra-high frequencies before a decision is made relative to either type of equipment. Thought should be given to durability over an extended period of time. To this end, it is usually advisable to purchase the best equipment obtainable, as it will no doubt be an eventual saving to the public.

The proper selection of a transmitter site for the coverage required on the ultra-high frequency is of primary importance, as is the height at which the antenna is to be erected. Sound engineering advice should be obtained.

At present, no power limitations are prescribed on ultra-high frequencies. Municipalities may request the power necessary to secure the desired coverage. At the present time the city of Newark, N. J., is operating with 500 watts power and has reported good reception up to 50 miles.

Two-Way on High Frequencies Only

The Commission authorizes two-way police communication on the ultra-high frequencies only. It is evident that this type of communication is highly desirable, but owing to the many limitations—some mechanical and others physical—the Commission does not consider it feasible and practicable to authorize other than one-way police communication on the conventional police frequencies.

However, in determining the requirements of a municipality with regard to one-way versus two-way communication, careful consideration should be given to the number of police cars to be equipped with transmitters. A large number of such cars may prove to be a great source of interference and confusion, and in the end would defeat the effectiveness of the system.

Certain cities have found it advantageous to have headquarters broadcast and cars receive on the medium frequency, and the cars transmit on the ultra-high frequency.

Non-Skid Bituminous Paving With Curtailed Budget

By **WILLIAM H. COLLISSON, JR.**
City Engineer, Ocean City, N. J.

STREET-PAVING problems in Ocean City, N. J., became acute as a result of the city's retrenchment policy, and for the past several years very little street work has been done. Located just south of Atlantic City, on an island separating the Atlantic Ocean and Great Egg Harbor Bay and possessing a fine bathing beach, Ocean City has been known for many years as a leading family resort of New Jersey. Consequently, the city's new modern boardwalk, its hotels, homes and streets have been constructed to meet the demands of a large group of people who make Ocean City their home during the summer.

With this in mind, and being dependent on this group for a very large proportion of the city's revenue, the City Commissioners hesitated to discontinue their practice of constructing the highest type of pavement. Yet it was necessary to find some type that would meet the demands of traffic, and at the same time fall within the limits of the curtailed budget.

Considerable investigation and thought led to the selection of a one-course, fine-aggregate, bituminous concrete pavement to be laid on the existing gravel roadways after the necessary scarifying and reshaping. Two projects were set up, Central Avenue from 27th Street to 34th Street, and Bay Avenue from Second Street to Eighth Street, a total of approximately 16,800 square yards. Further economy was effected by constructing a 20-foot width of pavement, using the remainder of the gravel roadways as shoulders.

The pavement was laid in one course, having a compressed thickness of 2 inches with a seal coat of hot asphalt applied by squeegees and covered with ⅜-inch gravel and rolled. The bituminous material used in the pavement as well as for the seal coat was Texaco No. 54 paving cement. The pavement design meets the N. J. State Highway Department Specification FA-BC-1 for fine aggregate bituminous concrete, the composition of which, excluding the seal coat, falls within the limits given below:

RAKING AND ROLLING THE ASPHALTIC CONCRETE SURFACE

A VIEW OF A SECTION OF COMPLETED PAVEMENT, SHOWING ITS NON-SKID CHARACTER

TABLE OF SPECIFICATIONS FOR NEW JERSEY FA-BC-1 FINE AGGREGATE BITUMINOUS CONCRETE

Screens and Sieves Passing	Screens and Sieves Retained on	Type of Openings	Min. %	Max. %
1	½″	Circular	0 0	25 0
½″	¼″	"	20 0	45 0
¼″	10 mesh	"	5 0	25 0
10 mesh	30 "	Square	3 0	12 0
30 "	50 "	"	6 0	12 0
50 "	80 "	"	6 0	12 0
80 "	200 "	"	5 0	11 0
200 "		"	5 0	8 0
Total stone content retained on 10-mesh sieve			50 0	70 0
Bitumen content			6 5	8 0

Mixing and Spreading the Hot Material

This specification results in a very dense pavement that will weigh in excess of 220 pounds per square yard of surface, not counting the seal coat. Because of the fineness of the aggregate, care was used in the addition of the mineral filler and of the asphalt cement, so that they were evenly distributed throughout the mixture, assuring uniformity. The aggregate was heated to a temperature in excess of 300° F. but not exceeding 375° F. and the asphaltic cement to a temperature of from 250° F. to 350° F. The stone and sand were put into the pug-mill first and then the mineral filler was added. The asphaltic cement was not added until the mineral filler had become uniformly distributed through the aggregate. After all the ingredi-

ents were in, the mixing was continued until all the aggregate was uniformly and completely coated with the asphaltic cement.

While the paving mixture was still hot, above 275° F., it was deposited on the foundation with hot shovels and spread with hot rakes, and thoroughly compacted by rolling and, where necessary, tamping, until the desired thickness, surface finish, and contour were obtained.

The initial rolling was effected by means of 10-ton, 3-wheel rollers, followed by diagonal and transverse rolling with 8-ton tandem rollers.

As soon as the rolling was finished and while the surface was yet clean and hot, hot asphaltic cement was evenly applied by means of a hand-operated squeegee distributor, so that only enough asphaltic cement was used to coat the surface and fill the voids without leaving an excess on the surface. Immediately over this the top dressing of ⅜-inch gravel was uniformly spread and rolled into the surface, leaving a surplus of this dressing on the surface.

The work was performed under contract by R. S. Barrett, Ocean City, N. J.

New Incinerator Cuts Operating Costs in Half

By **I. RUSSELL RIKER**
Sanitary Engineer, Borough of Princeton, N. J.

MUNICIPAL collection of garbage has been in effect for many years in Princeton, N. J. Previous to 1925 the garbage was fed to hogs on nearby farms. Early in 1925 an incinerator, costing $14,900, was placed in operation. The designed capacity of the plant was 10 tons in 8 hours. The 30 x 30-foot building was of steel frame with an asbestos covering. The plant gave very good service until 1932, when it started to go to pieces. The arch in the furnaces began to crack, the top of the combustion chamber caved in, and the chimney cracked in a number of places, almost the entire lining crashing to the bottom some time in 1933.

Operation of the Old Incinerator

For years, only the garbage collected by the municipal collector was burned in the incinerator, with a little rubbish from the University and a load once in a while from private collectors. The garbage arrived very early in the day with practically no rubbish with it, so that coal had to be added as fuel. The amount of coal varied from three-quarters to over a ton a day, and one year it cost over $2,000. There were eleven private collectors, who collected about as much garbage and rubbish as the municipal collector. Every Thursday from 4 to 6 tons of tin cans and bottles were collected and dumped in an area adjacent to the incinerator, along with the refuse from private collectors. On March 1, 1933, Princeton University, which owned the land, after several warnings, served notice that all available space adjacent to the incinerator had been filled in and that additional fill would interfere with the channel of Stony Brook. The dump had become a real nuisance, fires were burning most of the time, and rats were so plentiful that the local police went to the dump for target practice.

THE OLD INCINERATOR AT PRINCETON, N. J.

In order to reduce the amount of refuse necessary to dump, we began to put everything through the incinerator, including tin cans. The residue was hauled from the incinerator with the sterilized tin cans to another dump in the borough adjacent to a residential section.

Choosing a Site for a New Incinerator

It was decided that it was almost hopeless to continue to utilize the old incinerator. Preliminary plans were therefore drawn and a site chosen for a new incinerator located at the new sewage treatment plant described in THE AMERICAN CITY for October, 1932. Choosing a site was not easy, for the haul is doubled to the new site, being 3 against 1½ miles to the old incinerator. The following advantages of the chosen site offset the added haul.

1. Land owned by the borough was available.
2. Water and power were available at lower rates than elsewhere.
3. By-products of the incinerator could be disposed of at the sewage plant, and in turn sludge and screenings could be burned in the incinerator.
4. Labor would be interchangeable because peak loads occur at different times for each plant.
5. Gas from the sewage plant could be utilized in the incinerator, and heat from the combustion chamber at the incinerator for the sludge digestion tank.
6. Adequate disposal area for incinerator residue.
7. All sanitary disposal equipment would be together, and technical supervision would be available at little additional expense.

Financing

Representatives of Princeton Township, Princeton Borough and Princeton University met in July, 1933, and decided to build a new incinerator at the sewage treatment plant. The borough was to finance the plant, with the township and the University leasing a share according to the tonnage delivered by each party. For the first year it was decided to make the percentages the same as for the sewage treatment plant, township 12.48 per cent, University 20.87 per cent, and borough 66.65 per cent.

Preliminary plans and estimates of cost were prepared, and an application for $35,000 was submitted to PWA in August, 1933. It was approved December, 1933, bids were advertised February 6, 1934, the contract was let February 24, 1934, work began March 15, 1934, and the plant was completed September 15, 1934. The bid of $32,031 was the lowest of eight bids including practically all the standard incinerator companies. The Federal Government has advanced the entire grant of $10,765.26, making the net cost of the project $26,143.67.

Description of Building

The incinerator is located 175 feet south of the sedimentation tank and 200 feet west of the sludge digestion tank. The building is 35 x 50 feet, with two 12 x 12-foot metal rolling doors on the uphill side opening onto the charging floor from the ramp. Platform scales of 15 tons capacity on the ramp are used to weigh all incoming materials. The chimney is located between the two doors. The charging floor is of 8-inch reinforced concrete laid on steel girders, and the stoking floor is 6-inch concrete. The distance between the stoking floor and the bottom of the charging floor is 12 feet 4 inches. The walls are common brick laid with Flemish bond and terra cotta trim. An 18-inch wind-operated copper ventilator is placed in the center of the roof. The steel windows on the charging floor cover 34 per cent of the wall area. The windows on the first floor are of the casement type and cover only 5 per cent of the wall area. There are five floor drains on the charging floor and two on the stoking floor, each trapped, and the main drain leads to a master trap and thence to the sewage treatment plant. A wash-room with toilet and basin is located on the charging floor, with a drinking fountain nearby. There is a fire-hose outlet on the charging floor, with hose, a hot and cold water outlet, and a steam outlet.

The Chimney

The chimney was built by the Rust Engineering Co. as subcontractors. It is 80 feet high above the grates and 4½ feet inside diameter. It is constructed of red perforated radial brick, with a fire-brick lining varying from 9 to 4½ inches thick. The lining is bound for the full height with steel lattice of ½-inch x 3-inch bands on 4-foot centers both horizontally and vertically. There is an uninterrupted air space with vents at the top and bottom between the outside brick and the lining.

The Furnaces

There are two furnaces, each with its own combustion chamber, designed, built and installed under the supervision of the B. F. Shaughnessy Tool and Incinerator Co. They are of the circular dome type with an inside diameter of 10 feet. The area above each grate is 392 cubic feet, and the flue opening into the combustion chamber is 3 feet 6 inches x 3 feet 8 inches. The circular combustion chamber is 360 cubic feet in volume, with baffles to stop short circuits.

A 3-foot 6-inch x 4-foot flue leads direct to the header flue, with a damper between, and another flue of the same size leads to the preheater chamber. The preheater consists of horizontal tubes through which the hot gases pass to the chimney. Cold air, 3,800 to 4,550 cubic feet per minute, is forced by a fan around the tubes and thence beneath the grate of each furnace, controlled by dampers. The furnace

VIEW OF PRINCETON'S NEW INCINERATOR, SHOWING THE APPROACH RAMP AT THE LEFT

and combustion chambers are encased in ¼-inch steel plate, inside which are a 2-inch layer of common brick and a 2½-inch layer of insulating brick with 9 inches of fire-brick on the inside of the furnace. The charging hole, one for each furnace, is lined above and a few inches below the floor with a metal casting, and the charging chute, which is lined with fire-brick, is enclosed in a steel jacket. The cover is circular and insulated with high-temperature cement.

There are three 18 x 24-inch stoking doors for each furnace. The grates are stationary and supported in place on cast iron channel bars set securely in the brickwork.

There is a trap door of steel in the charging floor through which ashes and residue from the furnace are lifted by a 1-ton chain hoist. This hoist, running on a steel trolley, is also used to lift the charging hole covers.

The combustion chamber is connected by a flue to a steel boiler with a basket water-cooled grate and a stationary grate, much the same as in incinerators of the water-cooled type. It is connected with the charging floor by a small chute so that it may be fed from above. Hot gases from the combustion chamber are easily diverted through the boiler. A hot-water system with a storage tank is connected to the steam boiler. A thermocouple is installed in each combustion chamber and connected with a recording pyrometer on the charging floor.

The Official Test

The official acceptance test was made on October 8 and 9, 1934. A total of 28 tons of refuse was delivered, 56 per cent of which was garbage. The results of the test were as follows:

1. When the mix was properly balanced and with uniform delivery, the temperature in the combustion chamber was over 1,400 degrees and never fell below 1,200 degrees. However, owing to uneven arrival and lack of sufficient material, the temperature averaged 1,280 degrees for the one furnace on October 9, and on October 8, when two furnaces were operated, 738 degrees for one and 946 degrees for the other.

2. The residue from the single furnace operated at capacity was clean, dry, and free from organic matter.

3. The capacity of the plant was never less than 2 tons per hour, and one furnace burned as much as 3.3 tons in one hour.

4. The smoke emitted from the chimney was not objectionable, never being very dense or dark.
5. If the dampers were regulated properly and the blower used with discretion, no dust was emitted from the chimneys.
6. No objectionable odors were emitted from the chimney.
7. Garbage was dumped directly into the furnace. At least 5 cubic yards was dumped on the fire at one time without smoldering it.
8. All tin cans and bottles were placed in the incinerator.
9. One man operated the furnace properly, but it takes two to complete the personnel when all loads are weighed, bulky material broken up, and furnace cleaned and residue removed.
10. The amount of power and water used was negligible.
11. No commercial fuel of any kind was needed.

Present Method of Operation

During the five months of operation only one furnace has been operated at a time. The average daily tonnage has been 11.35, the maximum 17. The empty furnace is filled with the driest material available during the day, ready for the next morning's garbage. Then the residue from the furnace that was operated the day before is cleaned out. This averages one ton a day used for fill.

No bottles are put in the incinerator. A half-ton of bottles caused clinkers as large as 2 feet in diameter. As much as 3 tons of tin cans are run through in 8 hours with the regular refuse in one furnace. The blower is used on bad days or to hasten combustion at the end of the day's run. The sewage plant screenings are burned daily, and a short test indicates that dry sludge burns readily without smoke or odor. The secret of optimum operation of the plant is to keep the temperature over 1,000 degrees by saving enough dry material to feed to the fire as needed.

Steam and hot water are used for washing garbage cans, but no attempt has been made to use the steam at the sewage treatment plant for heating the digesters, since there is plenty of sludge storage capacity at present.

Quantity and Quality of Refuse

The semi-scavenger system of collection in force in Princeton is a great handicap in the operation of the plant. There are three University trucks making a total of six trips a day. The municipal collector makes two and sometimes three trips a day, and the seven private collectors seven trips a day. Besides these, there are stores and private individuals delivering throughout the day, so that at times there are as many as 23 deliveries a day without any regulation as to their time of arrival. There may be two hours when no refuse arrives, and then six to ten trucks may arrive in the next hour or two. Better distribution of loads would give more uniform combustion.

All kinds of material are received; some very wet material from the University dining halls, and grease from their grease-traps. On about three days a week a dog is delivered for disposal, every day there is fish and sea food and well-wrapped municipal garbage, and tin cans once a week. By agreement with the township all food cans must be run through the incinerator to sterilize them, so that they will not draw rats or become a nuisance when used for fill.

Possible Improvements

While the incinerator has proved very successful, I do not mean to give the impression that it is perfect. If it were re-designed, more thought would be given to labor-saving devices for handling ashes and cans. Consideration would be given to raising the dome of the furnaces. Incinerator designers do not pay enough attention to the bulk of the material, while too much emphasis is placed on tonnage and grate area. If tin cans are to be burned, the standard capacity should be made greater. The present tin-can age has changed the incineration problem. A few tin cans scattered through the refuse help combustion, but 12,000 or more in 10 or 12 tons of garbage occupy too much space in the furnace. On certain days, the fires must be cleaned frequently or there is a lack of burning capacity. We are convinced that we should have experienced serious difficulties if we had adopted any one of the furnaces with less capacity above the grate.

Cost of Operation

The new incinerator cost $700 per ton of rated capacity in 24 hours to build. The cost of operation, exclusive of interest and amortization, so far has amounted to about 70 cents per ton. The fixed cost for interest and amortization is 82 cents a ton, making the total cost for the first year $1.52 per ton, or 46 cents per capita. With the incinerator operating to capacity, these figures would be cut in half.

The budget item for incinerator operation is $3,160 this year. It was made high intentionally for the first year, though the actual cost will probably be under $3,000. If tin cans were eliminated, the plant could be operated for less than $2,000. The interest on the bonds is $960 the first year, and the amortization $2,000, a total of $6,120. Each year the interest is less, and the bonds will be paid off in twelve years. The new incinerator operates at about one-half the cost of the old one, the saving just about taking care of the amortization and interest.

Joseph S. Hoff, Mayor of Princeton, who pushed the construction of the new sewerage system, was also instrumental in furthering the incinerator project. Acknowledgment is also made of the cooperation of C. C. Vermuele, State Public Works Engineer, and his assistants, especially C. W. Raycroft, who was Engineer Inspector.

The Chairman of the Committee of Council in charge of the construction, George Karch, is an electrical contractor, and his practical services were very valuable. When the work was completed, it was turned over to the Operating Committee, consisting of Dr. Charles Browne, representing the borough, William T. White, representing the township, and E. A. MacMillan, representing the University.

The general contractor on the work was the M. A. Long Co., of Baltimore, Md., and Allentown, Pa. The writer prepared the plans and specifications and supervised the construction.

City Record *to Publish Names of Sub-Contractors on New York Work*

IN a letter dated June 17, 1935, to his heads of departments, Mayor La Guardia of New York City ordered the insertion in the *City Record* of:

1. The name of each sub-contractor approved by the Department.
2. The address of such sub-contractor.
3. The name of the contractor on the project upon which the sub-contractor is employed.
4. The name of the project by general description.

The Mayor states that this order was transmitted for the purpose of wiping out potential abuses of long standing, and that valid objections to such sub-contractors by responsible parties will be freely entertained.

Municipal Vehicle Maintenance at Atlanta

City's Own Garage Services 202 Trucks, Cars, Motorcycles, and Keeps Record of All Tires, as Shown on the Cover of This Issue

By S. E. HOUSTON

MAINTAINING a fleet of 131 trucks ranging from ½ to 5 tons capacity is no small job in itself, but when such diverse types of vehicles as 4 ambulances, 2 patrols, 34 squad cars, 5 other automobiles, and 26 motorcycles are added, the fleet executive is faced with a much more complicated task.

Such is the job which R. B. Jett, Superintendent of the Motor Transport Department, Atlanta, Ga., has been handling with exceptional ability since 1919. But that is not all. Mr. Jett is responsible not only for the efficient operation of the city's fleet of 202 trucks, cars, and motorcycles, but also for the mechanical condition of ten street sweepers, three steam and three gasoline rollers, several jackhammers and air compressors, a tractor, a grader, and other equipment operated by the various city departments. The garage also maintains the equipment employed by the municipal rock quarry, which includes two steam engines, two boilers, a drill, two stone crushers, and an air compressor.

The garage is a steel-frame building with corrugated steel walls and roof, 90 by 200 feet. In the front of the building, at the right, is Mr. Jett's office, and at the left, the general office, where records are kept. The parts, tire and stock room and a special room devoted entirely to engine overhauling and testing are also in the front of the building. The remainder of this section is the service floor for automotive equipment, with machine tools and work-benches along the north wall, under the windows. Trucks and cars that are being worked on are run in facing the windows. Opposite the service floor and in the same room are the washing, greasing, and battery-charging equipment. A special room, easily accessible to all mechanics, houses toll equipment, drill presses, welding apparatus, cylinder boring and other necessary machines.

The rear part of the building is occupied by a second and larger machine shop and the woodworking and blacksmith shops, all the equipment being arranged so as to facilitate repair work on the city's various heavy-duty machines. Here, also, adequate space has been provided for the manufacture of all dump and garbage bodies used on city trucks.

Repairs Radio Sets Too

This well-equipped organization handles all repairs on automotive equipment except tire casing and radiator core repairs, and provision is now being made to handle the latter. Even the short-wave radio sets are maintained by Mr. Jett's organization except when complicated radio chassis work is required. One mechanic provides emergency service on police cars and other equipment.

At the time of the writer's visit, one of the repair jobs in progress, which graphically demonstrated the versatility of this organization, was the rebuilding of a rather ancient steam engine, part of the city quarry equipment, and the rebuilding of a modern gasoline-powered air compressor belonging to the same department. Mr. Jett called attention to the fact that in addition to maintaining the ten street sweepers, the department manufactures both wire and fiber brushes for these sweepers, thus materially reducing upkeep expense.

ONE OF THE 60 INTERNATIONALS WITH A CITY-BUILT DUMP BODY

One policy which assists in the reduction of truck-operating expense is that of having spare engines, transmissions, clutches, rear axles, and other units quickly available for the trucks and cars. These spare units are of course kept only for the types of vehicles of which the city has the greatest number. As a result, when one of the city's sanitation or construction department trucks requires extensive engine or other unit repairs, the auxiliary unit is quickly installed and the activities of the department operating the vehicle are not delayed. Overhauling work on the unit taken out of the truck is begun immediately, and as soon as it is completed the unit is placed in stock to be used in another vehicle when need arises.

Scheduled maintenance is a fetish with Mr. Jett, and it must be if he is to keep the city's equipment working on a profitable basis, for many of the units operated by Atlanta—and this is true in the majority of municipalities—need replacement long before the city is able to purchase new units. Recently several new Model C-50 International trucks have been added to the city's sanitation department equipment. These have fully enclosed cabs and dump bodies built by the city garage staff.

Every Car on Greasing Chart

An example of the thoroughness with which the schedules of this organization have been worked out is found in the greasing chart which hangs on the wall over the greasing pit. On this chart are listed all the vehicles owned by the city of Atlanta. Each time a truck or car is greased, the date and mileage are recorded opposite the vehicle number. At the same time, the driver is instructed when to bring his vehicle in again for lubrication. Mr. Jett does not depend on the driver to bring the truck in at a certain stated mileage; instead, he has worked out a definite schedule for each vehicle, based on his own knowledge of the mileage covered and the work done by it.

A perpetual inventory of gasoline and oil is maintained. Three men working in three shifts are employed in the gasoline and oil department, thus giving 24-hour service to the city's vehicles. When one man relieves another,

accurate measurements are taken of the fuel in the tanks. These measurements are made with gages accurately calibrated to each tank, thus enabling the garage bookkeeper to check closely on fuel purchases and disbursements. The care exercised in the handling of fuel has been well worth the possible slight additional cost, if any, of such a check-up. In 1934 the city purchased 396,245 gallons of gasoline and charged to individual trucks, automobiles, or motorcycles 395,610 gallons, leaving only 635 gallons, or a 0.16 per cent shrinkage, an unusually low figure. Oil companies usually consider 0.4 per cent a fair gasoline shrinkage loss.

Part and tire inventory are also perpetual. While parts for most of the trucks and cars are quickly available in Atlanta, a stock of approximately $10,000 in value is maintained at the city garage. This does not include the spare units previously mentioned.

The personnel of the city of Atlanta garage consists of 31 men, in addition to Mr. Jett. The general foreman is W. H. Smith; the inspector, J. H. Todd; and the stock man, J. G. Jones. The staff consists of a general foreman, an inspector, a stock man, a clerk in the office, three men in the gasoline and oil department, one night grease man, and twelve mechanics, two of whom are motor specialtists. There are also two machinists, one man in the woodworking shop, three blacksmiths and four helpers. (See the front cover.)

Budget on Monthly Basis Revised Twice

The first of each year Mr. Jett makes up his annual budget. This covers the following items: payroll; office supplies; operating supplies, which include gasoline, oil, tires; repair parts; purchase of new tools and equipment; garage (this is really depreciation on building); and transportation. This budget is made up on a monthly basis and is submitted to the City Comptroller, who then passes it on to the Finance Committee of the City Council, headed by Aubrey Milam, and to Mayor James L. Key, for approval. The budget is revised in June and again in October, when it is passed on for approval in the same manner.

Each month the city garage submits an itemized report of work done and charges made against each of the city departments for maintenance work on the department's equipment. This report shows the amount and cost of gasoline and oil charged to the departments, as well as new tires, tire repairs, repair parts, labor, grease, anti-freeze, and other charges made.

In addition to his maintenance activities, which have over a period of years saved the city of Atlanta a considerable sum of money, Mr. Jett also writes specifications and makes recommendations for new equipment required by the various city departments. Prior to assuming his present duties as Superintendent of the Motor Transport Department, he had charge of all machinery and automotive maintenance for the Coca-Cola Co., Atlanta.

Equipment Maintained

The following is a list of the automotive and other equipment maintained by the city of Atlanta garage as of March, 1935:

Department	Trucks	Cars	Other Equipment
Construction	36 (dump)		Several jack-hammers Air compressors 3 steam and 3 gasoline rollers
Sanitary	62 (dump and garbage)		10 sweepers
Police	4	36 (2 patrols and balance squad cars)	26 motorcycles
Parks	9		
Prison	3	1	
Battle Hill Sanitarium	3	1	
Candler Field (Airport)	2		1 tractor 1 grader 1 portable air compressor
Grady Hospital	4 (ambulances)	1	
Health	9		
Motor transport	2		
Mayor		1	
Tax Assessor		1	
Electrical (lights and signals)	1		
Rock quarry			2 crushers 2 steam engines 2 steam boilers 1 air compressor 1 steam drill

Dip and Drink—for Tax Refreshment

By WILLIAM N. McNAIR, Mayor of Pittsburgh

A STORY is told of a ship sailing the South American seas whose supply of fresh water became exhausted. The crew signaled a passing steamer, indicating their distress and asking help. To their surprise they received the following return message—"Dip and drink." They signaled again and got the same message.

Realizing that it was useless to try to drink the salt water, but feeling that they ought to obey the message, they let down a bucket and to their surprise they found it to be fresh water. Then they realized that the great Amazon River flowed far out into the ocean, and they were passing through that channel.

To the taxing officials of our harassed municipalities that have found their revenues disappearing, the city of Pittsburgh sends a similar message. We have discovered a fresh supply in our downtown land values. Pittsburgh gets practically all its revenue from land and buildings, and we have cut the city tax rate on improvements in half.

The ground rent which we are tapping as a source of municipal revenue is a deep and steadily flowing stream, and as much of it is paid to out-of-town holders, our people are not distressed when a heavy levy is put upon that source.

The landowners' cry for relief, we feel, is somewhat like that of the man who came to our police station and complained that while he was out working some one stole his relief check.

In collecting more of the economic rent our city has discovered a new natural law and that is, the larger the percentage of its taxes a community takes for city purposes from this fund, the more the economic rent increases. We have discovered that by increasing the rates on land value and decreasing them on building value, we make our business locations more desirable. Such sites can be used and improved at less cost, and the fact that the under-improved location pays more taxes gives access to those locations, so that more business comes into the community. A valuable corner for merchandising or an advantageous site for manufacturing that is taxed lightly will be held out of use by speculators, but if taxes are shifted from improvements to land, the speculators will either use their locations or turn them over by rental or sale to some one else who will put them to use. This puts men to work and increases industry.

As Mayor of an industrial city—speaking from our experience of the last ten or fifteen years—I would suggest that other communities follow this plan of dipping into this great reservoir of community income for public purposes.

Improving City Streets Through Low-Cost Stabilization

By MARK CHAMBERS
City Engineer, Battle Creek, Mich.

FACED by the need for improving several miles of heavily traveled dirt streets at a time when funds for such work were definitely limited, early in 1934 we recommended to the Battle Creek City Commission that the streets be resurfaced by the low-cost stabilization method, using binder soil and calcium chloride. The project was approved, and as the streets have now withstood the test of the extremely dry summer of 1934 and have come through the spring break-up in good condition, the results obtained can be fully reported.

In all, approximately three miles of streets were stabilized during June and July, 1934. Most of these streets are important links in crosstown traffic routes and carry nearly 3,000 vehicles a day. Under normal financial conditions, some of these streets would undoubtedly have been paved, in view of the traffic carried, but because of the need for economy, the stabilization method was recommended after several sections of stabilized road elsewhere in the state had been inspected. Considering the low initial cost of the construction, we are well pleased with this type of surface.

Construction

In undertaking the construction, we first made soil tests of the existing surfaces, assisted by soils engineers of the company supplying the calcium chloride. The tests revealed a deficiency of suitable binder material and some deficiency of gravel in the existing earth surfaces, which had been extremely difficult to maintain under the heavy traffic. Further, tests of material from local sources disclosed that clay and gravel of suitable quality were available from pits near the city.

Following the usual construction process, the surfaces of the streets were scarified to a depth of 3 inches and the clay was placed on the road and allowed to dry in windrows. The crushing effect of a dual-wheeled grader was found to be satisfactory for pulverizing the clay when run back and forth over the windrows. The new gravel, the pulverized clay and the scarified material were then thoroughly mixed by blading. Six bladings were found to be sufficient for a good mix, which was then returned to windrows on both sides of the road, while the base was thoroughly sprinkled. The material was then spread onto the surface in two layers, each layer being thoroughly sprinkled and compacted by trucks and traffic. As construction was undertaken in the extremely dry period of 1934, considerable water was used in compacting the road.

In reviewing the method of construction, I find that costs were somewhat increased through the use of hand-labor to remove stones turned up by the scarifier. The cost of this operation I believe could be materially reduced by the use of a rake attached to the scarifier.

Calcium chloride, which is applied to this type of road to retain the moisture bond, was not included in the surface mix, as is now recommended, but was applied to the surface at the rate of 2.6 pounds per square yard. This application was sufficient to keep the streets dustless through the remainder of the summer.

Costs

Costs of the construction, including the new gravel, clay, calcium chloride and processing operations, averaged only 3.05 cents per square yard, or $1,135 per mile for the 24-foot surface. With this expenditure we obtained a closed firmly-bonded surface which was free from dust and did not rut during the spring break-up despite the continued heavy traffic.

BURNHAM STREET, BATTLE CREEK, MICH., IMPROVED BY STABILIZATION

Detailed costs on two of the projects follow:

HAMBLIN AVENUE—BARNEY STREET TO SOUTH KENDALL

	Stabilized July 17, 1934		
	Length	2,644 feet	
	Width	24 feet	
	Square yards	7,051	
272.5 cubic yards clay	Labor	$113 50	
	Equipment	115 23	
	Material	68 18	$296 91
39 cubic yards gravel	Labor	22 00	
	Equipment	28 01	
	Gravel	19 50	69 51
Scarify and grade	Labor	15 00	
	Equipment	25 60	40 60
Sprinkling and calcium chloride	Labor	55 75	
	Equipment	46 38	
	Material	232 00	334 13
Cost per square yard—$0.105			$741 15

BRIGDEN AVENUE—VERONA ROAD TO PUMPING STATION

	Stabilized 1934		
	Length	2,500 feet	
	Width	24 feet	
	Square yards	6,667	
Scarify and grade	Labor	$4 00	
	Equipment	1 12	$5 12
Gravel	Labor	18 75	
	Equipment	31 69	
	42 cubic yards at $1.00	42 00	92 44
Clay	Labor	82 50	
	Equipment	77 25	
	87½ cubic yards	35 00	194 75
Sprinkling and calcium chloride	Labor	28 50	
	Equipment	28 65	
	8.5 tons chloride $19.50	165 75	222 90
Cost per square yard—$0.077			$515 21

Results

Considering the results from the standpoint of the public, the general satisfaction of property owners along the stabilized streets has been frequently expressed. An indication of the public's opinion is contained in the question, "What kind of paving did you use on that street?", which was asked by a number of individuals after construction had been completed. The approval of motorists is evidenced by increased use of these streets since the improved surface was constructed.

From the viewpoint of the engineer, the savings in maintenance operations are most interesting. While comparative maintenance cost figures are not yet available, such savings will result from the reduced frequency of blading operations, as already demonstrated; from the saving of surface material lost from an ordinary gravel road by the action of wind, rain and traffic; and by the reduction in the frequency of calcium chloride applications needed to keep the streets dustless in summer, as revealed last year when only one application was made to the stabilized streets while two and three were made to the ordinary gravel streets. Savings which may accrue in the future through the use of the stabilized surface as a base course for higher-type surfacing, of course, can only be suggested at this time and will depend on future construction.

Making the Most of Meter Readers

By **ORVILLE C. BUTLER**
Superintendent, Bureau of Water, Niagara Falls, N. Y.

IN a reorganization of the Water Department of Niagara Falls, N. Y., in 1932, one meter reader was dropped from the payroll, his services not being required. A thorough study was then under way of the work being done by the meter readers in general. This study revealed that they were reading an average of 57 meters per day, which appeared to be an exceedingly low figure. It was found to be not unreasonable to expect them to read 150 meters per day. This meant that the three districts of the city would have to be adjusted so that the work would be properly allocated and accomplished. In arriving at the number of meters possible to be read by one man, it was necessary to estimate the work conservatively, because if the number assigned was too high, the whole plan would fail and the Bureau of Water might find itself in a position that would not permit billing at the proper time. The mark was set at 150 meters and it worked very satisfactorily, except that the meter readers completed their work earlier in the month than had been anticipated.

A study was then made to see what additional work might be done by these men to improve the service, and save money if possible. The question of delivering water bills instead of mailing them arose. A schedule of delivery was prepared and it worked to the satisfaction of every one. With postage at the rate of 2 cents per bill, an annual saving of $1,109.54 was apparent for the year 1932.

Stopped Meters Prevented

Even after the addition of this work to that already done by the meter readers, it was found that they still had a small amount of time each month for the improvement of service. Attention was called to the number of stopped meters. It had been the practice to repair meters that were stopped after the meter reader had read the meter and found no consumption for the previous quarter. This was changed, and the meter readers were instructed that when a reading showed an abnormally low consumption, it was their duty to step to a laundry tap in the cellar and turn on the water; then, while the water was running, to go back to the meter and determine whether or not it was stopped. In the event that the meter showed no registration, the reader was instructed to fill out a card and return the card to the main office for delivery to the meter repair department. Under this method, stopped meters are now reported, repaired, and back in service within 24 to 48 hours. By the earlier system, stopped meters were not repaired until at least one complete quarter had elapsed, at which time the meter reader would find that no consumption had been registered. In addition to giving prompt service, the new method saved a great many disputes that might arise from the calculation of average bills for the quarter during which the meter was stopped. It also reduced the possibility of loss of revenue to the department.

The meter readers were then instructed to check up and report on meters found without seals. During the first month of this work, some 800 meters were found either unsealed or with broken seals. It is not believed that the seals were removed maliciously, but that the situation was the result of lack of attention.

High Consumption Noted

Every phase of the personnel in connection with the

BUREAU OF WATER **NOTICE** Nº 620

Date_____

Address_____ Book No._____

Meter Size_____ Make_____ Number_____

DATE	READER	READING	BILLING CONSUMPTION
Pres.			
Prev.			
Check			

Consumed in_____ Days_____ Cubic Feet

The condition checked below has been found to be the cause for the abnormally high consumption:

- ☐ Leak in Toilet
- ☐ T. N. Toilet in Use
- ☐ Flush Valve Toilet in Use
- ☐ Leak in Plumbing Fixtures
- ☐ Leaking Fittings
- ☐ Water Power Washer Used
- ☐ Syphon in Use
- ☐ Service Leak
- ☐ Ice Machine Used
- ☐ Water Run to Avoid Freezing
- ☐ Meter Reversed or Tampered With
- ☐ Meter Incorrectly Read
- ☐ Lawn or Garden Sprinkling
- ☐ Indicate Here if Test is Warranted

☐ Meter Has Been Tested and Found to be_____

☐ Original Reading is Correct / Incorrect

Remarks:_____

Receipt of this Notice is Acknowledged_____

THIS FORM, MEASURING 4 x 6 INCHES, IS TURNED IN BY METER READERS WHEN HIGH CONSUMPTION IS NOTED

activities of the Water Department has been studied with the purpose of reducing, if possible, the annual cost of operation. Consumers, who are the stockholders in the Department, are entitled to every reasonable consideration. With this in mind, a form was prepared to use as a check when meter reading showed an abnormally high consumption. If a meter reader finds a high reading, he immediately fills out the form and returns it to the office. Within a few days, and before billing the account another meter reader takes the form and returns to the location of the meter to determine: first, whether the meter reading is correct; second, the cause, if possible, of the high consumption. If, in his judgment, the reading is correct, he so indicates, and takes another reading for the purpose of checking the consumption within a short space of time. He also secures the signature of the householder with whom a copy of the report is left. If, in the judgment of both meter readers, the meter should be tested for accuracy, that is done. The notice also gives the Department sufficient information to permit the superintendent to carry on an intelligent discussion with any consumer who complains about a high water bill.

More Care Needed in Picking Water-Supply Sources

Lessons from the Droughts of 1930 and 1934

By **PAUL HANSEN**
Greeley & Hansen, Sanitary Engineers, Chicago

THERE is a growing recognition that sources of water supply must be selected with greater circumspection than was deemed necessary a few years ago. With increasing density of population, increasing volume of domestic sewage, and increasing volume of industrial wastes, even the larger streams and lakes of the country have become so polluted in many cases as to place an undue burden upon water purification works. Notwithstanding the fact that the possibilities of water purification have been greatly increased, the country understands as it never has before the importance of controlling the pollution of natural bodies of water, for their protection as public water supplies, and their preservation for recreational and other uses. More consideration is also given to securing relatively unpolluted sources of water supply.

This movement has been accelerated by two notably dry years—1930, which affected principally the Ohio River valley, and 1934, which affected the Northwest. During these years many supplies were depleted to the point where communities were obliged to transport water from distant points by rail and truck. Furthermore, the low stream flows concentrated pollution to such an extent that many cities had great difficulty in producing an acceptable and safe water supply. Certain water supplies, notably at Charleston, W. Va., were suspected of being the cause of internal disturbances, even though they met the requirements of analytical standards, owing apparently to the fact that the raw water was excessively polluted, perhaps beyond the capacity of even the most elaborate purification processes to render safe.

Run-off records available during the drought years have placed in the hands of engineers valuable data for the development of adequate water supplies by means of impounding reservoirs. Drought experiences have also called attention to the value and limitations of impounding reservoirs in dry years. If drawn very low, they are subject to rather bad tastes and odors due to relatively harmless organisms, but they are nevertheless preferable to water supplies taken from flowing streams in which the concentration of pollution has become great owing to low stream flow.

ACKNOWLEDGMENT.—From a paper presented before the International Association of Public Works Officials.

Regarding Taxpayers as Customers and Going After the Business

A Story of Mechanization; Frequent, Hard and Persuasive Hitting of "Prospects"; and Getting Results for Both the City of Newark and Its Taxpayers

My work here goes back to the approach of an elected official to the job. If he comes as a politician, he wants everything done by hand. He wants all the employees he can get. If he desires to render service to the public and possibly build a career for himself based upon service to that public, then he wants to be up-to-date and efficient.

By REGINALD PARNELL

Director of Revenue and Finance, Newark, N. J.

WHEN I became Director of Revenue and Finance of the city of Newark, N. J., I found that although I was supposed to be Tax Receiver as well as Tax Assessor, the emphasis was on Tax Receiver. There was very little to receive.

Newark never had a good collection record, compared with, say, Providence, Baltimore, Denver, and the California cities. Even in the best years, tax receipts never amounted to more than 80 per cent, and in 1932 they dropped to 65 per cent and remained there through 1933.

What was the matter? We had no collection machinery. Bills were sent out once a year. Most people did as I did—put the tax bill in a drawer and forgot about it until interest had piled up, a penalty was added, or they happened to pass City Hall in June, July or August, saw the crowds and asked what it was all about, or else received a notice from the Building and Loan regarding their taxes.

When I took office in 1933, I asked the Citizens' Advisory Finance Committee to make a study of the operation of the Department of Revenue and Finance, and this was done under the supervision of Howard G. Fishack, Executive Secretary, and Loren B. Miller, Research Associate. At the same time I started a tax drive, one of the first ever instituted, which I described in this magazine in December, 1933.

In August, 1933, the Committee presented a report which contains 50 specific recommendations covering the work of the eight bureaus comprising the Department, ten recommendations of which are cited below:

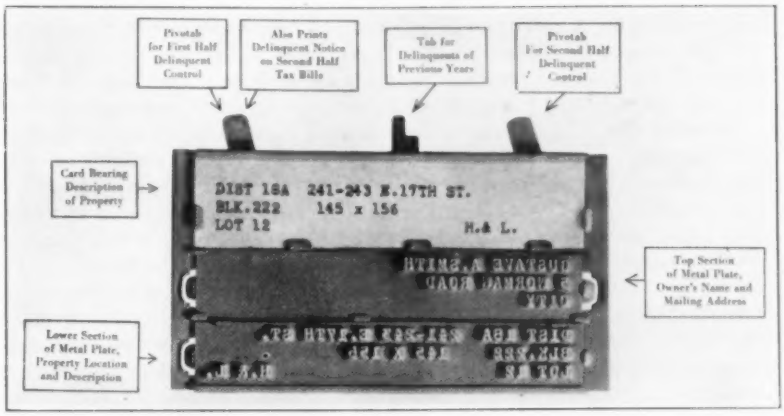
1. Advance assessment dates one month.
2. Prepare field books, assessor's roll, County Board of Taxation copy, tax books and tax bills by modern, mechanical addressing and listing equipment.
3. Make all assessing work a continuous process throughout the year.
4. Enter valuations on the field books, County Board copy, tax roll and tax bills by posting machine equipment that automatically calculates the amount of taxes and enters the amount on the books and bills.
5. Mail all tax bills rather than deliver them by city employees.
6. Establish in the Treasury Bureau a machine division to prepare mechanically all assessment rolls, tax rolls and tax bills, conduct periodic billing for both current and delinquent taxes; post delinquent taxes to card files.
7. The machine division should prepare all payrolls and checks.
8. Encourage payment of taxes by mail by inclosing addressed return envelopes with all bills and making interest penalties monthly instead of daily.
9. Prepare monthly balance sheets to show financial condition of city.
10. Install mechanical accounting equipment to handle many of the operations.

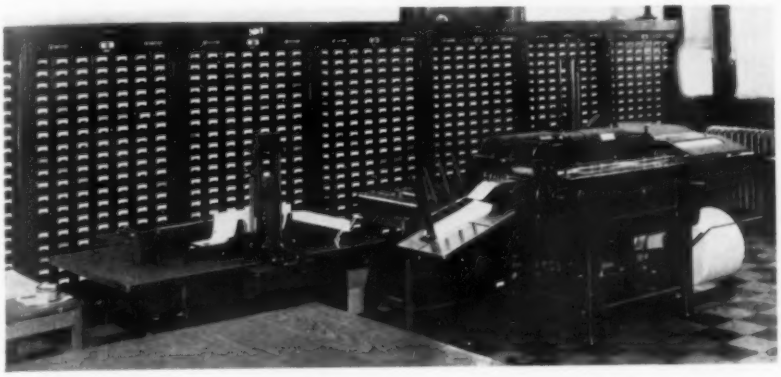
The report recognized that all the suggestions could not be followed immediately; but they did furnish a course of action. Those covering the improvement of methods of assessing, billing and collecting taxes could be put into effect immediately, and the Committee was invited to do this.

The purpose of the system installed was to provide better methods and to improve collections by constantly keeping before the taxpayers their obligations. This was a logical follow-through of the tax drive. The salient features were the elimination of handwritten records and the institution of modern assessing, collecting and accounting. The offices covered were those in charge of assessment of both real and personal property, special assessments, collection of current and delinquent taxes, preparation of payrolls, budget, and accounting for both receipts and expenditures.

Bills were formerly to be written out by hand and delivered by hand. This kept the assessing clerk from doing assessing and developing a complete knowledge of his district. The entire system was obsolete, so we installed: (1) Graphotype machines for cutting Addressograph plates; (2) Addressograph machines for writing name and property description on tax roll and tax bill; (3) Dupligraph machines to print collection letters, which are now sent out once a month; (4) Burroughs tax billing machines, employing skilled female operators at $1.200. The embossed plate (see illustration) has the owner's name and address on one section and a description of the property on the section below. This plate is used in making books and bills and in addressing all notices and bills to the taxpayers. The boks are loose-leaf, mechanically bound, much more consolidated, space-saving, neater and faster—2,000 listings an hour can be made against 100 or less by hand. This mechanical work is under the supervision of Gustave A. Smith.

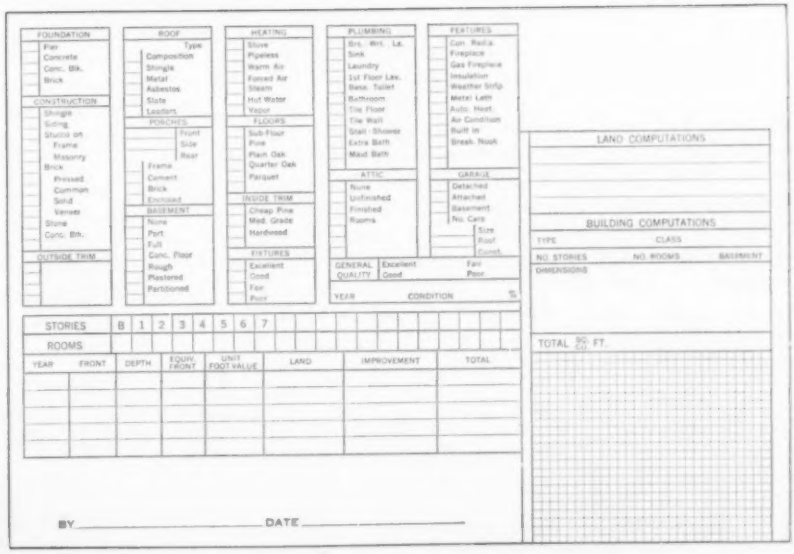
Graphotype machines emboss name, address and description of property on metal plate shown at right


Pivotab for First Half Delinquent Control
Also Prints Delinquent Notice on Second Half Tax Bills
Tab for Delinquents of Previous Years
Pivotab For Second Half Delinquent Control
Card Bearing Description of Property
DIST 18A 241-243 E.17TH ST.
BLK.222 145 x 156
LOT 12
H.& L.
Top Section of Metal Plate, Owner's Name and Mailing Address
Lower Section of Metal Plate, Property Location and Description



These plates, listing 55,000 pieces of real property, are filed in cabinets shown at left, back of the machine, which prints bills from a blank roll of paper

Valuation figures from the 7½ x 11½ assessing card at right are entered by tax accounting machines, shown below the card, in the assessment books opposite name and property previously listed from the plates



Special tax-receipting machine (below) in cashier's cage, which receipts bills and prints duplicate figures on a paper tape that is locked into the machine

Tax-accounting machine at right showing carbon-jacketed sheet of the receiver's book with tax bill being inserted in front. Tax bill can be inserted and removed without disturbing the book sheet

Another type of machine we use is a Burroughs tax-accounting machine, which computes amount of tax and divides the amount into the payments to be made, and lists assessed valuation and various amounts on both the tax bill and the assessor's book, in one operation. In another operation this machine inserts the valuation for each piece of property, makes deductions for any allowances, and inserts the net valuation on the tax rolls of the assessor's office and for the County Board of Taxation. In the cashier's cages are tax-receipting machines built specially by the Burroughs Adding Machine Co. from proposals submitted by the Citizen's Advisory Finance Committee. All this machinery cost us $45,000 and was worth it in results.

A most important feature of the Addressograph plates is that they are equipped with tabs indicating the quarters for which bills are due—February 1, May 1, August 1, and November 1. We tab arrears also. After December 31, 1934, the 1934 taxes are in arrears. Along about the middle of May, if taxes are still unpaid for the first and second quarters, the tabbing enables us to send out a collection letter advising that taxes for this period are unpaid and calling the taxpayer's attention to the fact that there is an 8 per cent penalty and if he doesn't want to incur this extra expense, taxes must be paid. This gives us, first, an intelligent approach. It gives me, as Tax Collector, a control. It gives me a hard-hitting unit, because this Bureau is now set up so that we can print a letter, we can address it, we can fold it (we have a folding machine), we can insert it in an envelope, seal and stamp 140,000 in 72 hours. That is the hardest-hitting unit in the city of Newark. During the billing periods we run a night and day shift, from 4 P. M. to 11 P.M. and from 8:30 A.M. to 4:30 P.M.

1934 Collections a Record

In presenting 1934's results we do not forget (1) the tax drive; (2) the improvement in business; (3) help from the Home Owners Loan Corporation, amounting to a little less than one million dollars in delinquent taxes. This was the biggest collection year in our history, and our new methods must not be discounted. People are now tax-conscious. Last year I sent two bills (required by law) and nine letters. We made the public understand that they must pay for water, police and fire protection. I told them that if they would work with the city I would give them the best tax deal they ever got. Now they have the lowest full tax rate in sixteen years. We are trying to build confidence.

Collections of current taxes improved 5 per cent, from 65 per cent to 70 per cent. Collections of delinquent taxes improved 10 per cent, from 42 per cent to 52 per cent of the amount outstanding at the beginning of the year. In all, $5,700,000 more than the previous year was paid. The total amount collected was $32,126,000, the largest amount ever paid in property taxes, though of course there was more tax outstanding.

Dun & Bradstreet figures for collections of current taxes in 150 cities show an improvement of 2.95 per cent; Newark's improvement in 1934 was 5.6 per cent. For the first three months of 1935, current collections showed an increase of 2 per cent over the corresponding period of last year, and delinquent collections 2½ per cent. At this rate collections for the year will be within 2 per cent of collections for 1930.

The tax rate is $3.36; was $3.65 in 1934; $3.98 in 1931.

The city entered 1934 owing $8,785,887, and started 1935 with a clean slate as a result of a funding program that cleared up all bills and short-term notes.

On January 1, 1934, the banks held notes of the city amounting to $16,328,000; all paid now and no short-term debt. Gross debt was reduced $8,237,967 last year. Rateables exceeded a billion ($1,018,249,053) for the first time due to a revaluation program that added $100,000,000 to assessments and materially reduced the tax rate 29 points. Last year 7,884 taxpayers paid, in 20 monthly installments, $1,683,976.

Bonds were selling for as low as $70 in May, 1933, and this May were quoted at $109.86. Two years ago not 200 bonds of the city of Newark were transferred, whereas now not a day goes by that I don't transfer 200. In the third week of April, I transferred more than $2,000,000 in bonds. Whereas the city of Newark was paying 6 per cent for its money when I took this job over, the last issue went out at 3¾ per cent, and that is the lowest rate Newark bonds have ever sold at since 1906, when it was 3½, the lowest coupon rate on record.

We Must Rebuild Our American Cities

From an Editorial in Architecture *for June, 1935*

THIS nation has reached an important turn in the road. As pioneers we have necessarily built hurriedly, without taking the time and thought necessary to build particularly well. Much that we have built is in the nature of a temporary makeshift.

No one who will look about our cities will believe that this is the best we can do. Long-range planning has been conspicuous by its absence. We built for the horse and buggy, and the motor car changed our fundamental needs of space, streets, circulation. We built for self-contained communities and small manufacturing plants. Industry turned towards centralized mass production, locating its factories near the sources of materials or fuel—and small manufacturing was left high and dry by the tide. Then we discovered that over-centralization of industry had its own peculiar disadvantages, and, learning how to transmit power over high-tension wires, are now perhaps moving in the other direction in an attempt to unscramble a too greatly concentrated industry. We have shown about as much resemblance to a nationally planned activity as a pair of moles in their underground meanderings.

Nevertheless, with a rapidly increasing population, augmented by a steady flow of immigration, our needs expanded, we kept developing new virgin land, establishing new communities. We did not stop to rebuild; we merely moved beyond our mistakes, allowing them to rot, while we started another unplanned effort.

The turn of the road, however, is now just ahead of us. The curve representing the rate of increase in population is flattening out. Immigration has almost ceased. We no longer have an undeveloped continent ahead of us. The rush of pioneer building is over. We look about us and see that the job thus far is only a makeshift. We have built America, but it is far from being the best we can do. Our knowledge, our demands, our energies demand something better than the hasty, unplanned, bungled results we see about. We must rebuild America.

Underground Sewage Pumping Plant Serves San Pedro, California

Circular Pump Pit Structure Divided into Wet and Dry Wells

THE Terminal Way sewage pumping plant of the city of Los Angeles, Calif., is located on Terminal Island close to the Ferry Building of the Fifth Street-San Pedro Ferry. This plant, which was recently completed, handles all the sewage of San Pedro, an area of approximately 4,050 acres, which is brought across to Terminal Island and to the plant by means of a 20-inch cast iron inverted syphon under the main channel of Los Angeles Harbor. The plant is built below the ground surface, with the exception of the skylights and ventilator. The plant site will be landscaped by lawns and shrubbery with a paved driveway around the entire plant.

Gate Chamber

The two main parts of the station are a gate chamber and a pumping structure. The gate chamber is a rectangular, reinforced concrete pit, 4½ feet x 6 feet inside dimensions, and 24 feet deep, into which a 30-inch vitrified clay pipe line delivers the raw incoming sewage. The raw sewage, as it enters the pit, is dropped through an ingeniously arranged basket type of grid screen having vertical bars with 2⅝-inch openings between. This screen is mounted on guide rails and equipped with a steel cable hoisting mechanism for raising it to ground level for cleaning. During the screen-cleaning operation, the raw sewage passes directly into the pit, and then to the respective wet cells through 24-inch gate valves. The pumping equipment has been so proportioned as to function during this cleaning period without danger of clogging.

Pump-Pit Structure

The pump-pit structure is a circular reinforced concrete unit with an inside diameter of 34 feet and an inside depth of 24 feet. The portion of the cylinder below the motor-room floor is divided into wet and dry wells, by means of an inner concentric cylinder 13 feet inside diameter. The inside cylinder is the dry well where the pumps are located.

This concentric cylinder arrangement reduces the amount of concrete and steel reinforcing to a minimum, for both the outer and the inner walls, because a cylinder under both internal and external pressure requires the least amount of material for a given volume and therefore gives the largest amount of storage for sewage. Further, during construction, the cylindrical shape of the pumping structure was an important aid in sinking it as a caisson in the presence of fine sand and water.

The wet well is divided into two parts, and into each half there extends a suction pipe from a pump. This arrangement allows either half to be pumped dry and cleaned while the other half is in operation. The walls and roof of both the wet wall and the gate chamber are protected from the action of sewage gas by coating with three successive sprayings of sulphur silicate compound.

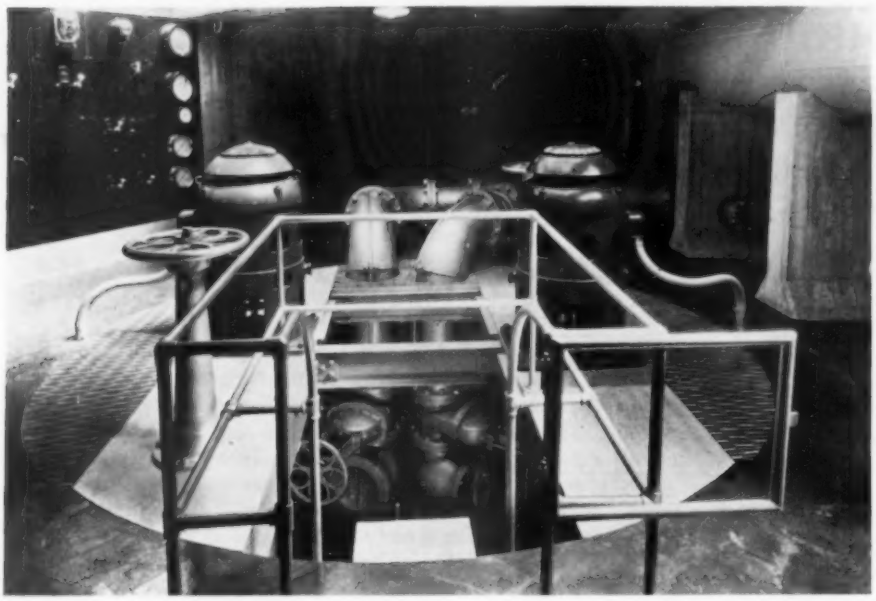
The necessary ventilation is secured by means of a 14-inch fan ventilator opening through the roof, and also by louvres in the skylights and the outside entrance door.

Pumping Equipment

The plant is equipped with two duplicate pumping units, independent of each other, so installed that either unit can be readily placed in service while the other is in reserve or removed for repairs, or both pumps can work at the same time. The pumps were purposely made with the same rotation, so that one set of spare parts is sufficient. The pump and motor are connected by means of a stainless steel shaft enclosed in a patented telescopic column for lubrication, protection and safety.

Dayton couplings with tension tie rods were used to connect the pump with the large suction and discharge

EXTERIOR OF THE PLANT BEFORE LANDSCAPING



INTERIOR OF THE TERMINAL WAY SEWAGE PUMPING PLANT

The illustration shows the two Byron Jackson 10-inch vertical single-stage sewage pumps, the Chapman check valves and gate valves, the electric control board at the left, and the surge tank at the right

piping. This type of coupling is advantageous in eliminating harmful stresses, tending to cause misalignment of the pump shaft, and also facilitates installation or removal of the units.

The pumps are special Byron Jackson 10-inch vertical centrifugal, single-stage units, with two-port, non-clogging impellers of higher than usual efficiency for this type of pump. The ultimate capacity of the plant is 4,275 gpm, about 17 tons per minute, through a 20-inch force main, a distance of 4,400 feet to the treatment plant, against a total dynamic head of 60 feet.

The motors are 60-hp, 960-rpm, 440-volt, 50-cycle, 3-phase, of the squirrel-cage vertical induction type. On 60-cycle current, the motors will operate at about 1,160 rpm. The direct-connected heads are of special Byron Jackson built-in design with General Electric rotors and stators. Suitable thrust bearings are provided at the top of the assembly, this location giving accessibility for inspection or removal.

The surge, or "water hammer," from the force main is taken care of by a special design of surge tank, located on concrete piers in the motor room. It is made of ¼-inch welded steel plates, 36 inches outside diameter, with dished ends welded on. The tank is 17 feet long, and designed for a working pressure of 75 pounds. The inside surface is metallized with lead. The tank is connected to an air-compressor unit which has a capacity of 2½ cubic feet of air per minute.

Automatic Operation

The entire plant is automatically operated, the electric motors being started and stopped by means of floats installed in float pipes. The floats actuate automatic magnetic starters. An attendant inspects the plant briefly once each 24 hours, changing the recorder charts, which give full information about all points of operation.

The instrument board, located in the motor room, is equipped with a Telechron electric clock, a Republic flow-meter recorder, a flow-meter integrator, and two 8-inch pressure gages showing pressure per square inch, and feet of water. The recorder has three pens, recording flow discharge at each pump and discharge pressure of the two.

The motor-room floor is covered with an attractive type of high-grade linoleum, called Mastipave. This is laid in 12-inch squares, with alternating red and green colors.

Preparedness for Changing to Hoover Dam Current

As the Bureau of Power and Light of the city of Los Angeles, will change from 50- to 60-cycle electric current early in 1936 when power is received from Hoover Dam, it was necessary to anticipate this change in the pump impeller design, as well as the pump-case construction. The measures to make the change, including guaranteed performance, had to be stated in the bid, so that when 60-cycle electric current is available, the necessary changes will be made at a minimum of expense, maintaining the same delivery conditions at the proper efficiency.

The plant was designed by Frank W. Parsons, under the supervision of Colonel H. G. Smith, Engineer of Sewer Design, for the city of Los Angeles, and construction was supervised by R. H. Travers, Construction Engineer. The two complete pumping units, suction and discharge piping, valves and fittings, including surge tank and electrical panel board, were furnished and installed by Byron Jackson Co.

Planned Spending for an Expanding Life Urged by H. G. Wells

"IN a world organized for peace, the surplus of energy has to be poured into public housing, into a complete and continuing reconstruction of homes and cities, into a continual increase in the general convenience and an incessant beautifying of our world. Everywhere and in everything the standard has to be raised. It has to continue using a common progressive design for life in the place of the wild, confused spending the distributionists would release.

"A vast extension of public education, great schools, great clinics, and a multitude of giant enterprises in research, exploration and social adventure, are inevitable if progress is to continue. Man must lead an expanding life in this expanding universe."

—From *Collier's* for June 1, 1935.

The Design of Brick Paving to Eliminate Skidding

By G. F. SCHLESINGER
Engineer-Director, National Paving Brick Association

THE flexible or so-called soft filler has superseded the rigid type for most brick pavement construction because of certain inherent advantages. Difficulties incident to temperature changes are obviated and the joints are sealed against the entrance of moisture. For years the asphalt filler called for in standard specifications met in its physical properties the requirements of good construction. As the average speed of highway traffic increased, however, complaints arose regarding accidents alleged to have been caused by the slippery condition of pavement surfaces of all types, especially in wet weather.

In investigating brick pavements concerning which there had been complaints of slipperiness in wet weather, it was invariably found that the surfaces were covered with asphalt in which the mineral cover material had not been properly incorporated. In order to secure an asphalt of the proper consistency for a good filler it was necessary that it have low ductility. The use of such a "short" material called for prompt action in the application of the cover material to insure its proper incorporation in the surplus asphalt left on the surface. When this was lacking, the result was a non-gritty, slick surface, particularly when in a moistened condition. Old brick pavements on which the asphalt had been worn from the surface through the action of traffic were not slippery. It therefore seemed highly desirable to construct a brick pavement so as to have the surface free of filler.

Whitewash Prevents Sticking

The specifications for the brick pavement on the Beaver Street viaduct, constructed in Jacksonville, Fla., in 1929, required that the joints be poured by hand and that no asphalt be left on the surface. The contractor requested permission to accomplish the results desired by brush-painting the surface of the brick with whitewash and then cutting the excess asphalt from the surface. A test produced more desirable results than by the hand pouring method, and the permission was given. In 1931, the whitewash method was used on the Washington Street Memorial Bridge pavement in Wilmington, Del. In the original and usual method of using whitewash, the coating on the surface is allowed to dry and forms a hardened separating layer. If this film is undisturbed, the pouring of the asphalt filler may be postponed for days. Because of the lasting nature of the film it is necessary to prevent the whitewash from entering the joints.

Use of Calcium Chloride and Starch Solution

In 1932 on a brick pavement project constructed by the Ohio Highway Department the whitewash solution was applied by means of a hand-operated air-pressure tank through a nozzle that produced a fine fog-like spray which moistened the surface only, with little leakage into the joints. Instead of waiting until the application had dried, the asphalt filler was applied at once, and as it began to cool and congeal, it was cut off in rolls with tools such as are used to cut ice from sidewalks. After considerable experimenting with various fluids, a calcium chloride solution with a slight laundry starch content has proved itself to be well adapted for use as a separating medium, and is now the material usually specified and used. The calcium chloride and starch produce a slightly gelatinous solution that resists evaporation or quick drying. In this method the separation is facilitated by a moist film on the surface rather than by a hardened coating. If the cutting operation is delayed too long, the asphalt on the surface cannot be removed. The contractor soon learns by experience the proper time to begin the removal operation, which varies principally with the air temperature. The temporary nature of the prevention of adhesion makes the slight moistening of the sides of the brick, which sometimes occurs, of no serious consequence. There may be "bubbling" when the hot asphalt is poured into the joints, but this merely denotes the escaping of steam into which the adhesion-preventing fluid has been converted. Care should be taken to remove the surface asphalt by cutting instead of rolling, so as to avoid pulling from the joints.

Comparisons

A few engineers have preferred the hard coating whitewash method, since it permits delaying the removal of the asphalt until it has cooled. There is no settlement in the joints. In view of the subsequent exuding that occurs, a preference on this score would not seem logical. With the moist-film calcium chloride method there is not as much trouble with sediment in the asphalt kettles, resulting in frequent cleaning and possible burned-out bottoms. Also, the surface shows no effect of whitewash stain, which, however, if present, would disappear in a few weeks. In either method the asphalt is poured direct into the joints at a high temperature, with no spreading or squeegeeing to cause it to cool before entering the joints. Thorough penetration to the bottom of the brick is secured. No particular care is necessary to secure a thin coat of asphalt on the surface and, as a matter of fact, a rather heavy coat facilitates removal. The reclaimed asphalt can be re-used, the usual requirement being that it should be combined in approximately equal parts with new material. Re-using of course increases the heating costs somewhat. The immediate result is a brick pavement clean of asphalt with flush well-filled joints.

Vertical Fiber Lug Brick

The term "vertical fiber" as applied to wire-cut paving brick has been a misnomer from a descriptive standpoint and is especially so since the advent of the de-airing process of manufacture. By no stretch of the imagination can the dense homogeneous structure of a de-aired clay column be considered as having fibers. The old term, how-

ever, will no doubt persist, and long usage has associated it with a certain type of brick. It has been observed that in de-aired brick the wire-cut surface is sometimes not as rough as in the non-de-aired unit. Any degree of roughness desirable, however, can be produced by the use of deformed cutting wires.

With the surface removal method of filler application, engineers were given a good opportunity to view the thoroughness with which the side and end joints were filled. The asphalt mat on top no longer covered over the faults in filling. It was noticed that in some cases the usual requirement of beveled ends, bulged, did not insure the results desired. In consequence, end lugs are now required by many specifications. The lugs as now designed are on each end and non-meshing, so to provide for a free flow of the filler. They function equally well when the brick are turned.

Filler Research

Investigations reported at the 1933 annual meeting of the Highway Research Board indicated that the coefficient of friction, both rolling and sliding, on "a vertical fiber brick road, free of asphalt filler" was practically the highest of any of the types that were included in the tests. Observations made on the same pavement during the second and third years after completion indicated a reduction in friction of some 30 to 60 per cent. According to the 1933 report, "during the summer of 1933 the asphalt filler bled from the joints . . . and covered in some places as much as 50 per cent of the road surface." There has been a subsequent further increase in filler exuding.

The National Paving Brick Association, recognizing the important bearing of filler exudation on the anti-skid properties of the brick pavement, in December, 1933, began a cooperative investigation with the Engineering Experiment Station of the Ohio State University which had for its purpose the developing of a filler that will be more non-exuding in character than the asphaltic material now in general use.

A test road is now under construction under the supervision of the Ohio Department of Highways and the U. S. Bureau of Public Roads on a Federal aid project. It is located on Ohio State Route 31, the Columbus-Athens road, in Hocking and Fairfield Counties. It consists of 14 sections of brick pavement each about 500 feet in length in which different varieties of filler material are used. Cement grout filler and plastic sulphur are used in two sections, the fillers on the remaining sections being essentially bituminous in composition.

ACKNOWLEDGMENT.—Abstract of a paper presented at the annual meeting of the Highway Research Board, Washington, D. C.

Street-Cleaning Notes from Miami, Florida

By **WILLIAM SYDOW**
Director of Public Service

STREET cleaning in Miami is accomplished by the use of three Elgin sweepers, nine white wings and one pick-up dump-truck. The downtown area is swept by hand from one to five times each 24 hours, but in the residential and other sections where automobile congestion is not as acute, street-sweeping machines are used.

Several years ago, we conducted an experiment with hand labor to replace street-sweeping machines because we had a bountiful supply of unemployed labor. We did not find the hand work to be quite satisfactory, because the men swept only the gutters and were unable to apply enough pressure on the brooms to completely remove the accumulation. The cost ran up considerably, too, so it is clearly out of the question to attempt to sweep by hand where it is possible to use machines.

Parked Cars Still a Nuisance

As regards the parked car nuisance, we have been unable to do very much with it. It is not practicable to enforce the ordinance against parking cars all night, so no attempt is made by the Police Department to move such cars. About all we have been able to do along this line in the residential section is by cooperation of the car owners themselves to see that their cars are not parked in the same area on successive street-sweeping periods. In other words, if the sweeper is due in front of a certain house on Monday nights and Thursday nights, we find the owner is willing to leave his car at a certain point in front of his home on Monday night, and he will on request move it, say 50 feet on Thursday night, so that the sweeper may at least sweep a particular spot once a week.

We find it very cheap to clean catch-basins by hand, because all such catch-basins in Miami are very shallow.

EDITORIAL NOTE.—Street-cleaning notes from other cities will appear as a regular feature of THE AMERICAN CITY: in August, from Portland, Maine; September, Baltimore, Md.; October, Mancester, N. H.; November, Burlington, Vt.

MIAMI'S NEW PICK-UP SWEEPER

Running a Department of Public Works

From a Radio Interview in the Series, "Problems of Municipal Government," Over Station WOKO

By **ALFRED E. ROCHE**
Commissioner of Public Works, Troy, N. Y., and
KENNETH W. MARSH
Commissioner of Public Works, Albany, N. Y.

MR. MARSH: Mr. Roche, you have been connected with the city government for a number of years. Will you tell us something of the running of a Department of Public Works?

MR. ROCHE: Yes, I shall be glad to. The two tests of practical efficiency applied to a Department of Public Works are: first, what does it provide for the people?; and, second, what does it cost?

MR. MARSH: When 100,000 people depend upon the water-supply system, you must be sufficiently alert to know that the water is pure, wholesome, dependable for drinking purposes and of sufficient quantity for fire protection. This requires skilled workmen—chemists, engineers, mechanics and accountants. I consider it necessary to give much attention to our water-supply system. What do you think is the most important work of a commissioner?

MR. ROCHE: Without any qualification, I am satisfied that our water supply should come first in the attention of the commissioner. Little do people realize the great amount of pipe, hydrants, taps and valves required to supply a city. For instance, we in Troy have 125 miles of pipe line, with 21,000 individual household taps, 2,100 hydrants, 4 reservoirs, and about 6,300 acres of land surrounding the reservoir to be protected. A water-supply system usually carries with it the necessity for sewers. Will you tell us something of your sewer system?

MR. MARSH: Our sewer system comprises about 200 miles of pipe with 4,000 cesspool connections and 20,000 household connections. Do you have any difficulty with your sewers?

MR. ROCHE: Yes. We have a number of men constantly cleaning the sewers and cesspools. It is expensive work, and the sad part of it is that it will continue to be an increasing source of expense. We are continually extending the sewers—we are making greater use of them; we are building new cesspools to receive the surface water. Just stop to realize the vast amount of sand and grit which is spread upon the streets between December and March to prevent skidding when the streets are covered with ice. A great deal of this finds its way into the sewers and cesspools and must be removed, or we shall have a stoppage, backing the water into the houses. It is a relatively inexpensive proposition to cast sand and grit on the street for traction purposes—it is very expensive to remove this same sand and grit from the sewers and cesspools. Will you tell us how you keep your sewers clean?

MR. MARSH: We have machines called Eductors, mounted on trucks, which cover the city and completely and inexpensively clean the cesspools. These machines are supplemented by a force of men cleaning the cesspools by hand. We clean all our basins at least once a year, so that the householder will be relieved of much sewer stoppage. I find the service rendered to the automobilist in sanding the streets for winter travel to be tremendously expensive. Last week on Monday the city men were removing ice and snow from the streets and gutters; on Tuesday it rained, flooding some of the streets as well as the sewers; on Wednesday it froze, and these same men were spreading sand on the streets to prevent skidding; on Thursday it thawed, and we spent the day removing from the streets the sand we put on them the day before.

Troy has a good reputation for its garbage collection system. Will you tell us something of it?

MR. ROCHE: The Department collects city waste of all kinds. It is amazing to see the amount of trash we handle. During 1934 we lifted from the curb 124,000 cubic yards of trash. That is about 68,000 tons. It consists of garbage, ashes, bottles, metals, cartons, boxes, beds, furniture, magazines, and the useless articles of 80,000 people. This material is collected twice a week in the residential sections and daily in the business area. Only 35 men and 14 trucks are used. Each of these 5-ton trucks has a body of 10 cubic yards capacity. This equipment is inspected weekly and kept in a high degree of perfection. The total cost of this service is $1.45 per person per year. You will observe that I said the total cost. That includes the cost of collection and disposal of all trash accumulated in the city. The vegetable matter is covered with clay and loam to prevent the spread of odors. All of the material collected is used to fill the low lands of waste areas. By this process we have reclaimed many acres of land. I understand you have instituted a new method of collecting garbage and trash. Will you tell us how your city treats this matter?

MR. MARSH: The budget appropriation for the collection of garbage in the city of Albany is $43,000, or about 34 cents per person per year. This includes the maintenance of five city-owned trucks equipped with Collecto bodies; supplies; salaries of the personnel of 24; and also the removal of dead animals and nuisances from the city's streets. This Department has been handling the garbage collection for about a year, having inherited it from the Health Department. The city is divided into seventeen districts. Collections in ten of these districts are made by city equipment, and private collectors operate in the remaining seven districts. The total amount of garbage collected was 9,000 tons in 1934. Collections are made three times a week in all sections, with the exception of the outlying districts, where collections are made twice a week. The collection of ashes and trash is done by licensed collectors.

Do you do all of your street repairing?

MR. ROCHE: Before answering, let me point out these items: First, in your city the cost of collecting garbage only, is 34 cents per person per year. To that figure must be added the cost of collecting ashes and trash, which,

according to your Department's report, is an individual arrangement between the householder and the licensed collector. I understand that the licensed contractor charges 15 cents for every barrel of ashes and trash removed, and that a family will contribute about 90 barrels of waste during a year, which amounts to $13.50 and in a family of 5 persons is $2.70 per person per year. There is likewise to be added to that figure the cost of disposal of this material, and from your Department's report it must be expensive as well as somewhat unsanitary. The report says: "Privately owned dumps create considerable nuisance, as they have no attendants, and the stench and smoke from uncontrolled fires cause many complaints to be filed in the Bureau of Streets. Some means should be arrived at to prohibit private dumping grounds and compel all gatherers of ashes and refuse to dispose of same in the city-maintained dumping ground." You see, if the figures of garbage collection are added to the figures of waste collection and the figures of disposal, the citizens of Albany have quite a charge to pay for this work.

Now I shall be glad to answer your question about street repairing. Recently we have been doing it. I do not believe the city should be in the street repair business; I believe the work should be contracted for. We have 91 miles of pavement to be maintained. We have established a number of patrols dividing the city into districts, and men with paving materials are required to keep those districts in excellent condition and to repair the holes as quickly as they appear. We have a great deal of asphalt pavement which is very easily cleaned and inexpensively repaired, but we have a number of miles of unpaved streets which we cover with oil and stone chips annually, which is an expensive proposition. The work is a source of worry to the adjacent householder, because it cannot be satisfactorily performed. Our bills could be reduced if we were able to eliminate the maintenance of the dirt streets and put them into the pavement class. Our water lines are buried, our sewers are likewise out of sight, but our streets are constantly in view. The use of 30-ton trucks has become fairly common. The elements producing a temperature of 20 degrees below zero in January, and a temperature of 115 to 118 degrees in July, creates cracking and consequent deterioration.

Will you tell us something of street cleaning?

MR. MARSH: We have a hand patrol of 50 men equipped with cans, carts, brooms and white suits. This patrol operates in the business section after midnight. The street sweepings are collected in cans and emptied into trucks the following day. The work of the hand patrol is quite efficient when you consider the problem of the parked car. We also operate a fleet of motor pick-up brooms which covered 23,300 miles of streets last year and removed 12,000 loads of dirt. These machines operate primarily in the residential and light business zones. We could not get along without them. It costs about $3.60 to clean by hand the same area cleaned by the motor broom at 50 cents. I observe that there are many more demands made upon the Department of Public Works for service now than heretofore. Do you find the same condition?

MR. ROCHE: That is true. Most of the new functions of government are centered in the Department of Public Works. For instance, one of the new functions of the Troy Department of Public Works is to do all of the transportation service for the Department of Education, for the City Clerk and the Election Bureau, as well as for the Department of Public Welfare. Within the year, we have unloaded many cars of potatoes, cabbage, pork and veal. These perishable goods have been moved from cars to the Welfare stores. We have, also, during the past two months, moved 82 families on the requisition of the Welfare Department. Public Works is a department which is expected to expand and contract its work as conditions require.

I'd like to tell you something of our public service station where 30 to 40 pieces of large equipment move in and out six days each week. Our service station is virtually a combined machine-carpenter shop. We do all kinds of automotive repairing. We employ machinists and automobile mechanics to maintain trucks, compressors, snow loaders, sewer-cleaning machines and motor brooms, and to operate presses, lathes, forges and drills. Our great success in maintaining this equipment has been continuity of employment of our skilled men.

We are subject to a great turnover in labor, and this is the branch of government the budget for which is curtailed most frequently. That may be explained by the fact that it is not encumbered by civil service. In order to operate within our budget appropriation, we have taken pattern after the management of big business organizations. We have installed in the Department a system of records and administrative methods which has made Troy a pioneer in American city government. The cost accounting system automatically guides us in curtailing unprofitable enterprises. The foremen, chauffeurs and mechanics find it of benefit to them. It accounts for their time. It tells the amount of work produced, the quality of the work, and whether work accomplished conforms to work planned. Daily and weekly reports supply a complete picture of our operations, so analyzed as to point out where changes are needed.

MR. MARSH: I think the service rendered by a Department of Public Works is a large example of the ability of a city, on a collective bargaining basis, to render a service which the individual could not attain for himself under any circumstances; and if we were to divide out the unit cost of the operation of any branch of public works activities, we should, without question, find that we are rendering to the people a high type of service, inexpensively performed.

Radio Series: Taxation for Prosperity

ON Tuesday evenings, over an NBC-WEAF nation-wide network, 7:45—8:00 Eastern Daylight Saving Time, may be heard:

July 2—"The Tariff and Business Recovery"—Francis Bowes Sayre

July 9—"How Much Should the Drinker Pay?"—C. H. Morrissett

July 16—"Missing the Intangibles"—William Bennett Munro

July 23—"Does Real Estate Pay Too Much?"—Joseph D. McGoldrick

July 30—"Tax Exemptions"—Lawson Purdy

August 6—"Tax Dodging by Constitutional Amendment"—Edwin A. Cottrell

August 13—"Single Tax vs. Triple Tax"—Walter Fairchild and Harold S. Buttenheim

August 20—"Who Gets the Tax Money?"—John N. Edy

August 27—"Processing Tax"—William Hard

Novel Heat Exchange for the Burlington Sewage Plant

By ROBERT CRAMER
Robert Cramer & Sons, Consulting Engineers, Milwaukee, Wis.

CONSTRUCTION is now being completed on the primary treatment portion of a sewage-disposal plant for the city of Burlington, Racine County, Wis. This city, with a population of 4,200, is situated on the Fox River, a small stream which usually carries very little water toward the end of summer. For this reason the treatment of the sewage must eventually be complete, but at the present time only the primary treatment portion of the plant is being constructed. It is the intention of the city government to complete the plant when sufficient funds to accomplish this become available.

The plant is located south of the city, outside the city limits, near the point where the untreated sewage was formerly discharged into the Fox River.

Low-Lift Pumps for Raw Sewage

The sewage must be lifted into the plant by means of pumps, which are in an inlet chamber about 16 feet below the general level of the disposal-plant site. On the inlet side of the two centrifugal pumps serving this purpose there is a "comminutor," by means of which all gross solids in the incoming sewage are reduced to particles less than ¼-inch in least dimension. This takes the place of a coarse screen, protecting the pumps and improving the settling characteristics of the clarifier, at the same time rendering the removal of coarse screenings unnecessary.

The pumps deliver the sewage into a round clarifier 40 feet in diameter and 8 feet deep. The sludge-removal mechanism in this clarifier is of the "tow-bro" type, by means of which the sludge is picked up by nozzles, which in this case are equipped with scoops, and conveyed through a manifold arm into the pipe leading to the sludge pump. The comminutor makes the use of this type of removal mechanism possible and practicable.

The clarifier is of the center-feed type, the flow being radially outward, and the effluent leaving the tank over a circular weir extending along the whole circumference. Attached to the sludge-removal manifold arm is a skimmer which conveys floating material to a scum trough, from which a branch pipe connects with the suction of the sludge pump.

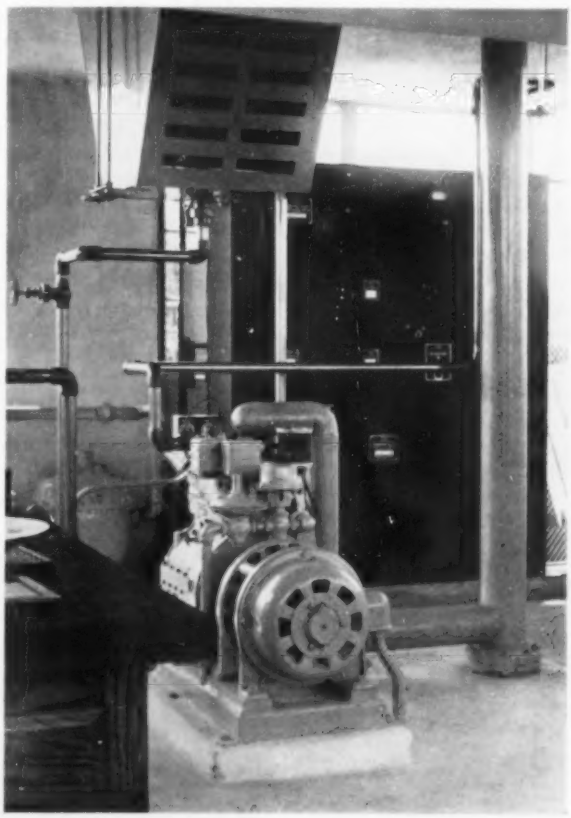
Sludge Handling

The sludge pump, of the screw feed centrifugal type, delivers the sludge to a digester 32 feet in diameter, average depth 13 feet. The digester is equipped with a solid concrete cover which carries a gas collector. The gas is conveyed from this collector through a pipe to a gas engine-generator set, where it is used for the production of power as fast as it is produced. The generator is of the three-phase induction type, connected in parallel with the incoming service. Thus the amount of energy to be drawn from the service is reduced by the amount of power available from the gas. The waste heat available from the engine jackets and in the exhaust is taken up and is conveyed by means of a hot-water circulating system to pipe coils in the digester. This waste heat is expected to be sufficient at all times to keep the digester at optimum temperature and to leave enough over to heat the service building except during prolonged spells of sub-zero weather. To provide for such cases there is a coal-fired auxiliary heater.

The digested sludge is discharged on open sludge drying beds having 6,000 square feet effective area.

The Service Building

The sludge pump, engine generator, auxiliary heater and switchboard are in a service building, which also contains a shallow well pump, office, washroom, workbench and laboratory bench. This building, 27 feet 6



INTERIOR OF THE SERVICE BUILDING AT THE SEWAGE TREATMENT PLANT, BURLINGTON, WIS.

The engine-generator set and switchboard are shown. Also, at right of engine is the water-jacketed exhaust pipe serving as an economizer. The structure above the engine is a combination unit heater and radiator for the engine, arranged so that either outside or inside air may be used for cooling, and the heated air sent inside or outside the building

FULLY AUTOMATIC LE ROI ENGINE AND GENERATOR SET OPERATING ON DIGESTER GAS

In the foreground is shown a part of the hot water circulating system of copper tubing with soldered fittings, polished and lacquered

inches x 17 feet 4 inches, has one story only, is of modern design and constructed of reinforced concrete and glass. There is no exterior finish except that of the concrete, and the roof is a simple concrete deck. From a level 3 feet 3 inches above the floor to the ceiling the outside walls are a continuous glass and steel sash surface, excepting only relatively narrow concrete columns which support the roof.

The heating system of the service building is unusual. It consists of a unit heater located below a roof ventilator and so connected that it is normally supplied with hot water from the engine circulating system (which is also connected with the digester coils), but can also receive hot water from the auxiliary coal-fired heater. The arrangement is such that the heated air supplied by this unit heater may be circulated throughout the building or may be dissipated to the outside through the ventilator. By simple adjustment the proper condition suitable on any given day may be effected.

The plant was designed by Robert Cramer & Sons, consulting engineers, Milwaukee, and was built under their supervision and the inspection of Joseph Farnum, City Engineer. The work was financed by the City Council through customary channels without any help from the state or Federal Government.

The Chicago Pump Company furnished the comminutor and sludge pump, and Yeomans Brothers the sewage pumps. The sludge-removal mechanism was furnished by the Chain Belt Company, Milwaukee, and the engine generator set by the Le Roi Company. The construction work was performed under a general contract by Fluor Brothers & Smith, of Oshkosh, Wis.

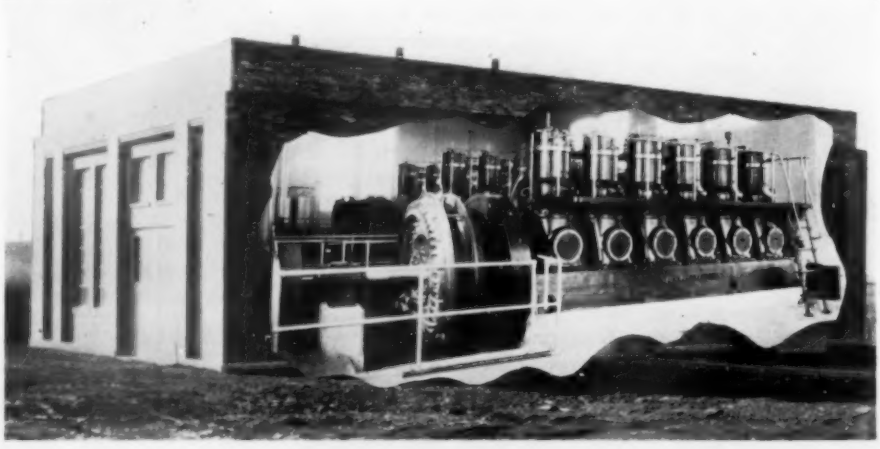
City Serves 80 Per Cent of the Meters After Two Months

AN electric rate of 15 cents per kwh in effect since 1910 finally got under the skin of the citizens of California, Mo., 2,384 population, so that in 1929 and 1930 bond elections for a new plant were held but not carried. The utility dropped the rate to 10 cents. In 1933 the bond election went over 6½ to 1 and, although the utility reduced the rate to 7½ cents, contract for the plant was awarded to Fairbanks, Morse & Co., for $142,000.

Construction started in the middle of 1934 and finished in December. The equipment consists of one 420-hp and two 350-hp diesel engines driving 2,400-volt alternators. Tests after five weeks' operation show 0.5508 pounds of fuel oil per kwh at full load, or 13 kwh per gallon.

On November 26, 1934, when operation started, there were 30 meters connected; one month later, 450, and the following month 570 meters; leaving the private utility with 140. This was 5 to 1 in favor of the municipal plant, checking satisfactorily with the bond-election sentiment of 6½ to 1, in the short space of two months. Income for the two months was $1,600 and $2,500 respectively, at 7½ cents.

Total annual operating expense is expected to be $18,000, and the eventual income $40,000, with no charge for street lighting or pumping, services which have heretofore cost the town $6,000 annually.



THE MUNICIPAL ELECTRIC PLANT AT CALIFORNIA, MO., HAS TWO DIESEL ENGINES TOTALING 770 HP

An Underground Dam Impounds Water for Harrisonburg, Virginia

By ALLEN B. McDANIEL
Consulting Engineer, The Research Service, Washington, D. C.

DURING 1934, the city of Harrisonburg, in the heart of the Valley of Virginia, solved its problem of water-supply protection against drought by constructing a unique ground-water collecting system at a total cost of about $38,000.

Since 1921, this Virginia city had considered the construction of a large surface reservoir in the Dry River watershed about 15 miles west of the city and adjacent to its surface-water intake, involving the construction of a dam and operating works at a cost of about $350,000.

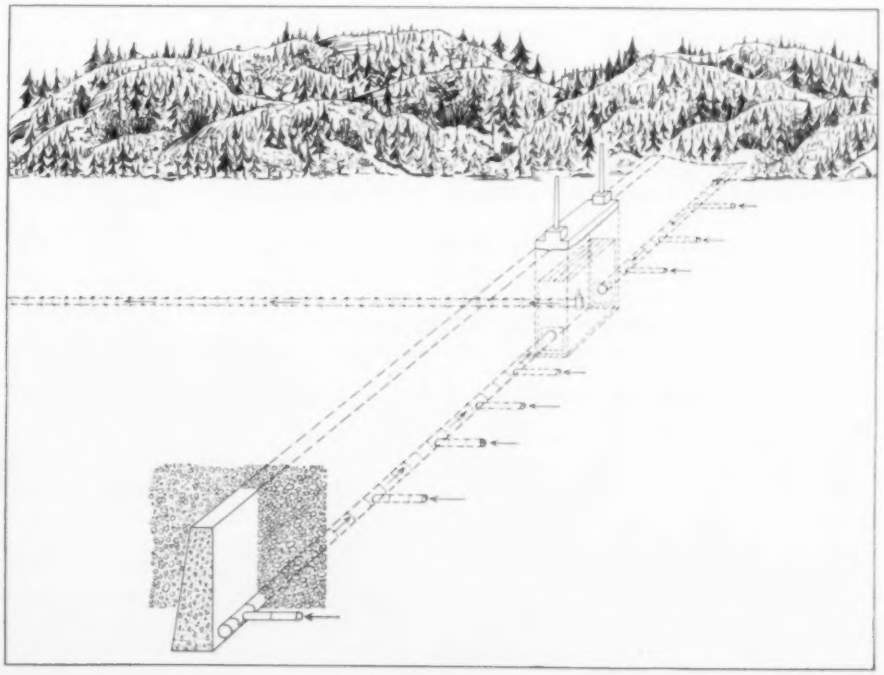
Emergency Supply

As a result of the severe drought which began in the early part of the summer of 1930, Harrisonburg faced a rapidly decreasing surface-water supply and was forced, in the winter of 1930-31, to lay a temporary pipe line about two miles in length from a spring-fed lake at Dayton, and pumped an auxiliary supply of water into the city's main at Dale Enterprise. This water, on account of its high hardness—about 230 parts per million—was unsatisfactory for both domestic and industrial uses, and expedited the action of the City Council in an investigation to supplement the rapidly dwindling surface-water supply in the Dry River watershed.

The Research Service began a field investigation and study in November, 1930. In the summer of 1931, a comprehensive report was presented to the city, recommending the construction of an impounding and regulatory reservoir in the Skidmore Fork Basin at the headwaters of Dry River. From 1931 to the summer of 1932 exploratory drilling and test pits were sunk in the Skidmore Fork and Gum Run Basins and adjacent to the surface-water intake works of the city. As a result of these field investigations a supplemental report was presented recommending the construction of a submerged dam and collecting works across the Dry River Valley about a quarter-mile above the surface-water intake works. About the middle of March, 1934, the city initiated the construction of a submerged dam and collecting works with its own labor forces under the immediate supervision of the City Engineer. This work was completed on September 28, 1934. The entire construction work was paid for out of funds secured from local banking institutions.

The New Project

The project comprises a concrete wall and collecting gallery with pipe lines. The reinforced concrete wall or submerged dam extends for a distance of 913 feet from the old concrete dam in the river bed on the east side of Dry River Valley to Riven Rock on the west slope of the valley. This wall has a height of from 10 to 22 feet above the valley floor, and a top width of 12 inches; the upstream face is vertical, and the downstream face has a slope of ½-inch to the foot. The wall was built in two sections; namely, a footing section and a wall section. The footing section was poured first, using a quick-setting



SECTION SHOWING UNDERGROUND DAM AND COLLECTION SYSTEM AT HARRISONBURG, VA.

LOOKING EAST
ALONG THE TOP OF THE DAM
AND COLLECTING GALLERY
FOR HARRISONBURG

cement, and was carried from the rock trench excavated in the valley floor to elevation 1680. A construction joint was placed in the top of each footing section. The wall sections were all of the same height—7½ feet, and carried to elevation 1687.5—the elevation of the top of the dam in the river channel.

At the gorge in the valley floor along the west side of the valley was placed the reinforced concrete collecting gallery, a room having inside dimensions of 25 feet length, 5 feet width, and 16½ feet depth. This room was located against the upstream face of the wall and provided with one 3-foot square opening—protected with an iron grating—at each of its ends.

Along the upstream toe of the wall or dam was laid a line of 15-inch and 18-inch concrete culvert pipe with open joints, and short branch lines of 12-inch pipe extending into the twelve major underground streams. The walls of the 15-inch and 18-inch pipe were perforated with ½-inch holes to increase the collecting capacity of the line.

On the upstream side of the dam and collecting gallery, the trench was backfilled with stone selected from the excavated drift or over-burden and so arranged that the larger sizes of stone were at the bottom and near the wall, grading to the smaller sizes of stone at the surface and away from the wall. The concrete pipe and rock fill form a large collecting gallery the length and depth of the wall and for a width of about 6 feet.

The wall or dam was built in 50-foot sections, separated by construction and expansion joints provided with copper strips within and on the upstream face of the wall. The wall was thoroughly tested during construction and before backfilling was done and it was found to be watertight.

Quantities and Costs

The concrete used in the dam and collecting gallery was designed to give the densest possible mixture with the Potomac River sand and crushed limestone. The mixture used was 1 part cement, 2 1/6 parts sand, and 3 7/16 parts of crushed stone. The theoretical water-cement ratio of 6¾ gallons of water per bag of cement was varied in the field to give a 1½-inch slump in tests made during each pouring. The quality of the concrete was currently determined by 7-day and 28-day compression tests of 6 x 12-inch cylinders. All the walls were reinforced with ½-inch and ⅞-inch round deformed bars to take stresses under maximum temperature and retaining-wall conditions.

The structures contain 661.3 cubic yards of concrete and 62,943 pounds of steel. This work involved the use of 1,135 barrels of cement and 715 tons of crushed stone. The construction of the dam and collecting gallery required the excavation of about 8,300 cubic yards of earth and rock at an average cost of $1.17 per cubic yard.

Underground Streams Intercepted

The ground water intercepted by the wall and collected in the gallery flows by gravity through a 14-inch C. I. pipe to the city's intake works. The intake stream is carried through the dam in a 30-inch C. I. pipe. The stream may be diverted into the collecting gallery through a 12-inch C. I. pipe in times of low water or drought.

Measurements made by the State Water Resources and Power office showed that during July and August there was an average underground flow of about 850,000 gallons of water per day over the valley floor. Since the completion of the project, this flow has been entirely intercepted by the wall and is carried from the collecting gallery by gravity flow to the city's intake works, in a 14-inch C. I. pipe line. This flow, due to rainfall and run-off conditions slightly above normal during the fall season, has increased the discharge to about a million and a quarter gallons per day.

The submerged dam has created an underground reservoir which extends for about one-half mile up the valley and has a sufficient capacity to meet the city's needs for a period of at least two weeks without replenishment. With a normal inflow during the three summer months, this underground water supply would probably take care of the city's requirements over the entire period. The city now has available a valuable addition to its former surface water supply, and a water that is pure, sweet and potable, free from contamination and pollution and filtered by its flow down the valley through the over-burden or drift lying on the valley floor of Pocono sandstone. This ground-water collecting system may be described as "working with nature." These supplemental works make it possible for the city in time of low flow or drought to intercept and collect the run-off from the entire watershed of the Dry River Basin, an area of about 57 square miles, lying above the works.

Now Is the Time for Municipal Electric Utilities to Build Load

When You've Got Most of the Meters in Town—It's Time to Increase the KWH Load per Customer

HOW many municipal electric utilities are encouraging their customers to use electric ranges, clothes washers, hot-water heaters and refrigerators? Average consumption by these four appliances alone by 100 families in a year amounts to 2,450,000 kilowatt-hours, which at 3 cents totals $7,350 worth of new business from old customers.

Load building is something that every municipal plant knows about, but not every one practices. Some of them do and all of them will, because good management and efficient operation consist not merely of breaking even or making a comfortable profit, but of building the consumption to fit good living conditions and the ability of the plant to produce.

Load building in a municipality owning its own plant has a triple value: (1) it increases revenues to the plant, which is to say, to the town; (2) the larger revenues and surplus permit lower rates or taxes or both; (3) the larger consumption means that existence has become more interesting to the women of the family and consequently to the men.

Greater Comfort in Home Life

The use of electric appliances is a measure of the material civilization of a community. They mark a distinct and permanent advance in manner of living. Only dire necessity will cause a woman who has known an electric refrigerator to revert to an ice box. But, common as the electric refrigerator seems to be in certain strata, there are fourteen million women who are doing without them. They have not been convinced that they can afford them.

Economic conditions appear to be no barrier to this character of load building, for in 1934 the private power companies broke all records in increasing their domestic load. How did they do it? Partly by advertising, by seeming to take some interest in the lives of their customers. They receive from $27 to $45 per year from each domestic customer, and they spend from 10 cents to $1.45 per customer for advertising.

A municipal plant is a business enterprise, nothing else. The modern method of accounting is to keep its earnings and expenses separate from the general income and outgo. It has gained a respectability that places it alongside the bank, the railroad, the industrial plant. It does not have to lie low, "less said the better." It is one of the few elements of the town government that pays its cost and helps support the body politic. The next step is to make it an American go-getter in the best meaning of that term: have it go out and get business by virtue of its having the goods that nearly all families could use if they knew enough about them. Its earnings are measured by the service it gives, in quality as well as quantity, and the mere quantity of its service is a measure of the economic standing of the town.

Average home consumption of electricity is usually placed at 50 kwh per month; in the publicly served province of Ontario it is 133 kwh. A well-equipped home of an average family should consume 500 to 1,000 kwh. This shows at once the vast possibilities of this off-peak pay load. It is worth while to drop rates sharply to attract this load, because it is largely a daytime load requiring no additional machinery or personnel. In fact, the only major cost is increased fuel consumption.

Intelligent Salesmanship

But low rates alone will not attract this increased home load. There must be sympathetic selling, including convincing home demonstrations without obligations, paying for range wiring or installing the range on rental, free water-heater installation, steady advertising of the *extra* advantage accruing from letting electricity do as much as possible of woman's drudgery. For example, take the hungriest of all the appliances, the electric range: it costs 7 cents per meal. Balance this cost against the cost, bother, and to some extent danger of coal, kerosene or gas, and matches, ashes, dirt, heat. The thing to sell is not an electric range but a happier woman, and in some cases the husband is the better prospective buyer.

"Utilities have grown and prospered," wrote Charles E. Long in October *Minnesota Municipalities*, "not so much because of an increase in the number of customers as by increasing the usage of current per customer."

The Tennessee Valley Authority recognized the need to develop a responsive market for present and future power, and about a year ago formed the Electric Home and Farm Authority, at Chattanooga, to: (1) develop cheaper appliances; (2) provide low-cost long-term financing of appliances; (3) educate the consumer and promote use. It is interesting to note that the Georgia Power Company, operating in the TVA area, by a reduced base rate and a promotional "inducement" rate and one- or two-year financing of appliances, all as of January 1, 1934, boosted appliance sales as tabulated below:

	1934	1933
Refrigerators	10,428	3,619
Ranges	3,577	652
Water heaters	1,896	117
Water pumps	276	161
Clothes washers	911	237
Ironing machines	314	40

Net sales last year totaled $2,579,142 for appliances sold to the 116,255 customers of the company. Average consumption for all these customers is 883.3 kwh, while in some towns the average is 1,000 to 1,200 kwh.

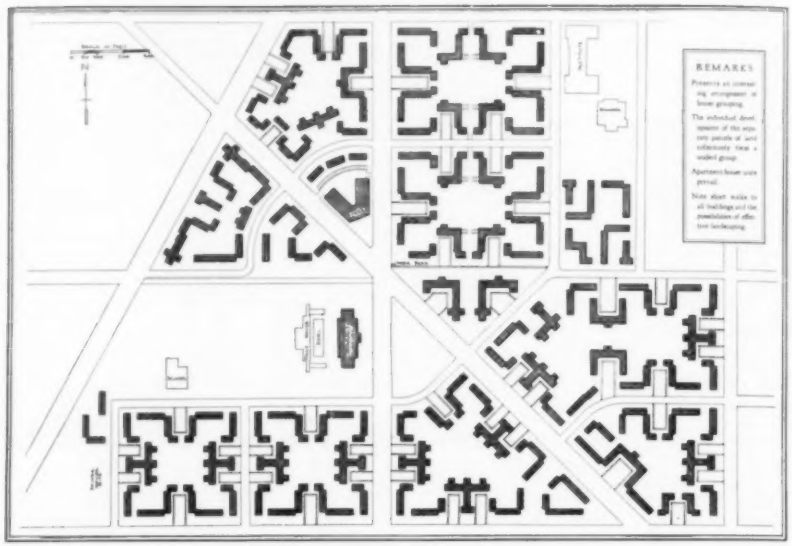
How many municipal utilities are vigorously building their day loads?

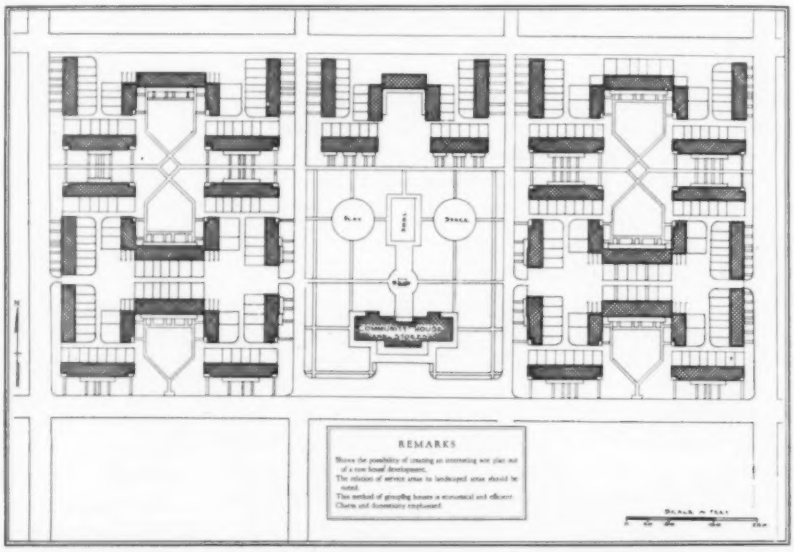
Site Plans for Low-Rent Housing Projects

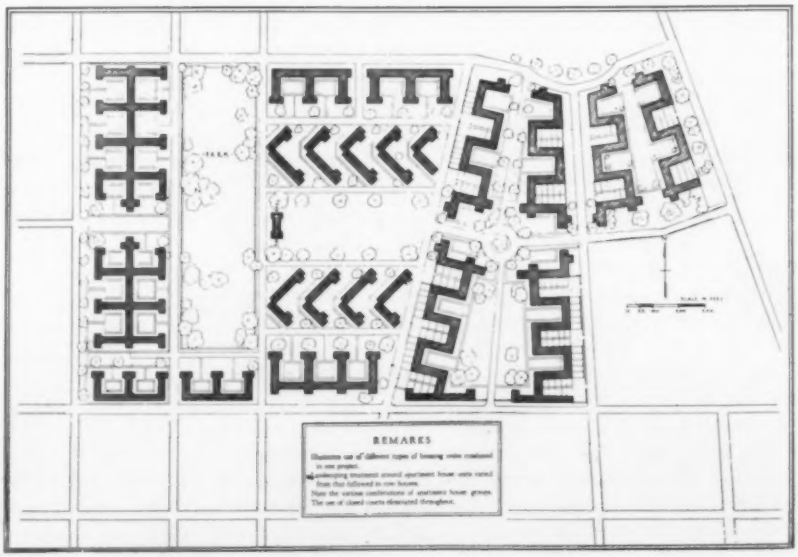
A COMPREHENSIVE manual of architectural and site plans and construction details for low-rent housing projects—the first publication of its kind to be issued in the United States—was released last month under the title, "Unit Plans," by the PWA Housing Division.

As pointed out in this new handbook, the site plan has a twofold purpose: it represents an assembly of the different types of dwelling units to be used in a project into an architectural and utilitarian grouping; and it depicts the use to be made of open areas into lawns, playgrounds, and the like.

Herewith are presented six of the solutions for different plots varying in size and shape. It will be noted that each has been treated quite separately by taking full advantage of the kind of housing units used, the percentage of land to be built upon, and a striving for openness. Other factors, not so readily noticed, are orientation, prevailing winds, and the relation of adjoining property as it affects site conditions.







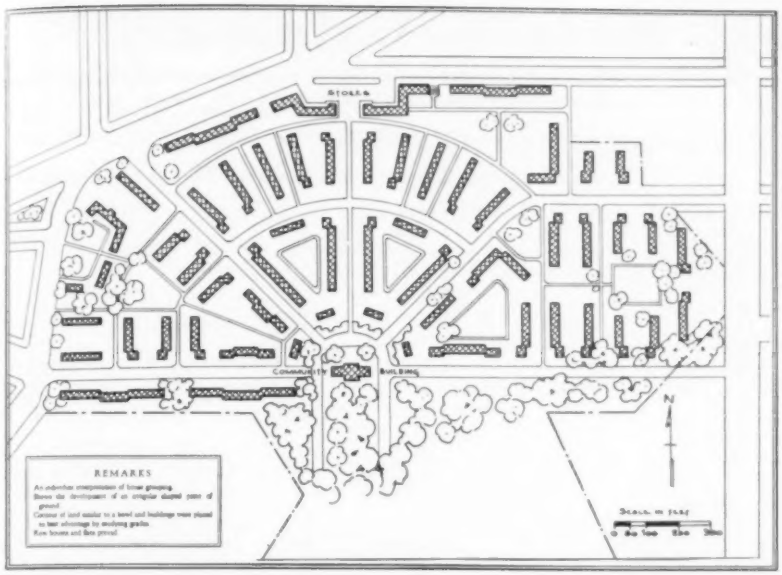
Notes from the Handbook Explanatory of Site Plans

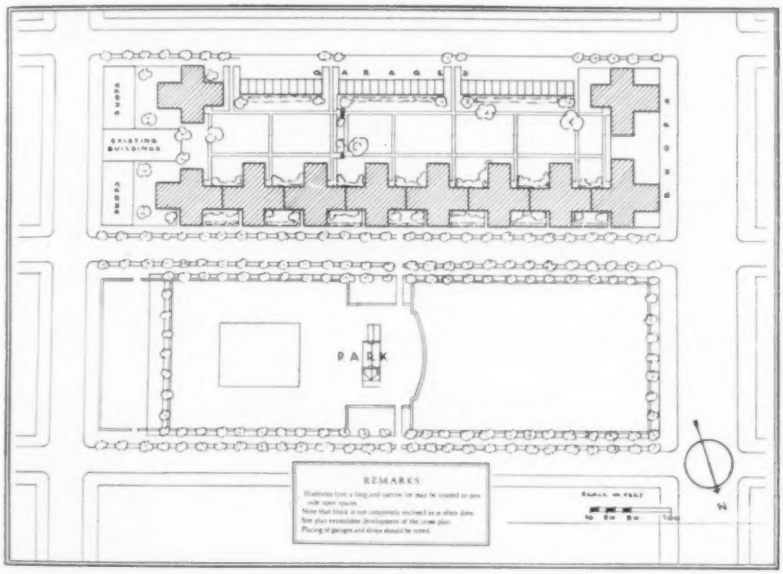
In group housing the existing street pattern and the extent to which it can be made a part of a well-balanced and properly arranged general site plan is of first importance.

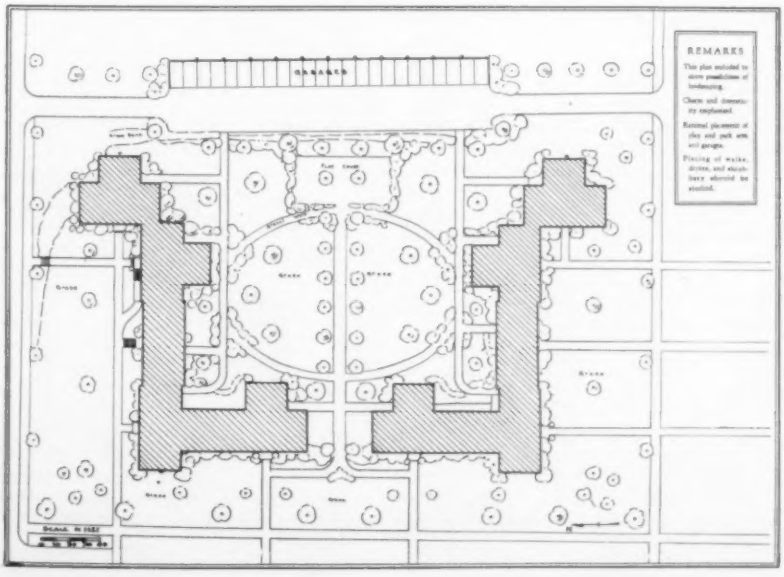
The vacating, dead ending, re-routing, or opening of streets should be given careful study. Street changes carry with them the matters of replacement of sewers, water supply, gas and electric mains, fire hydrants, electric light poles, police, fire, and traffic signal systems, United States mail boxes, each requiring agreements with Federal, state or city authorities and utility companies, aside from potential trouble arising from protests and claims of contiguous landowners. Obviously, any radical rearrangement of the street pattern must be carefully considered and checked with city planning boards or city officials, so that an agreement may be reached.

After determining the general arrangement of streets and service, the problem is one of correct grouping of unit plans to form an effective architectural composition. As the building unit plan is made up of the various room combinations composing it, so the site plan is composed of an assemblage of unit plans properly grouped. The site plan must indicate the use to be made of property surrounding the buildings, which in most instances represents about 75 per cent of the total land area.

The successful site plan is the result of studied analysis applied to various factors. First the type of prevailing building unit must be determined—either the apartment house, flat or row house. Experience has shown that a blending of







all three is highly desirable in most projects, and where this is done the proportionate amount of each type to be used must be decided upon in advance, and which will be the prevailing kind of unit. After this has been worked out, the number of stories per structure is then agreed upon, along with the number of basements and penthouses to be used, if any. At this point the placing of the units and grouping of same on the property is approached. This is necessarily influenced by the most efficient use to be made of vacant land surrounding the buildings. Orientation, prevailing winds, topography of land, and drainage should be duly considered, for they may seriously affect the ultimate solution. The advice of city planning boards should be obtained in order to tie the site plan in with the city plan.

Once the preliminary set-up is complete and the type as well as the amount of building structure has been agreed upon, the subject of landscaping bears attention. In the current low-rent housing projects where the average building coverage represents only one-fourth of the total land area, it is apparent that the development of the remaining land demands careful analysis as to its use. Lawns, play areas, walks and drives, stores, community buildings, and garages are some of the other non-housing features to be considered. The size of the project obviously will determine just how many of these community facilities will be made available in any given development.

It may be stated, therefore, that the site plan is principally the result of a culmination of a series of statistics in relation to a project, all previously worked out, with the variables as noted above having a direct bearing on the location of building with respect to landscaped areas.

PLANNING FOR SPACIOUSNESS

In direct contrast to low-rent housing in the past, which has resulted in our existing slum areas, a feeling of openness must be sought. Not only must a large percentage of the land remain unoccupied, but in addition to this the buildings have to be placed so as to emphasize this fact. Courts, when used, should be open, and wherever possible the general grouping of the buildings should adjoin large parked areas, so that no dwelling unit is too far distant from these spaces.

The kind of building unit selected will have a great deal to do with the use to be made of vacant land. Apartment house units naturally lean toward group treatment of open areas into parks, play groups, and the like. The row house, on the other hand, and the flat to a somewhat lesser degree, are more inclined toward individual plot layouts for gardening and private yards. As is well known, a considerable difference exists in landscape maintenance, depending on the use to be made of this land, for it is natural that individual yards maintained by the tenants cost considerably less in maintenance than large public lawns and parks.

Municipal Data Tabulated

Forms of City Government — Ownership of Utilities

Numbers and Salaries of City Employees

Municipal Retirement Systems — City Manager Appointments and Length of Service

Election and Tenure of City Officials

From "The Municipal Year Book 1935" (reviewed on page 93 of the June issue of THE AMERICAN CITY*) the following tables are here reproduced by permission of the International City Managers' Association.*

FORM OF GOVERNMENT IN 959 AMERICAN CITIES BY POPULATION GROUPS*

Population Group	Total Number of Cities	Mayor-Council No.	Mayor-Council Per Cent	Commission No.	Commission Per Cent	Council-Mgr. No.	Council-Mgr. Per Cent	Town Meeting No.	Town Meeting Per Cent
Over 500,000	13	13	100.0	–	–	–	–	–	–
200,000 to 500,000	27*	11	40.8	10	37.0	6	22.2	–	–
100,000 to 200,000	52	30	57.7	13	23.1	10	19.2	–	–
30,000 to 100,000	217	108	49.8	53	24.4	53	24.4	3	1.4
10,000 to 30,000	650	388	59.7	113	17.4	115	17.7	34	5.3
All Cities Over 10,000	959	550	57.4	188	19.6	184	19.2	37	3.8

NUMBER OF COUNCILMEN IN 959 CITIES OVER 10,000 POPULATION BY POPULATION GROUPS AND TYPE OF GOVERNMENT*

Population Group	Mayor-Council Range	Mayor-Council Mode	Mayor-Council Median	Commission Range	Commission Mode	Commission Median	Council-Manager Range	Council-Manager Mode	Council-Manager Median
Over 500,000	9–72	–	22	–	–	–	–	–	–
200,000 to 500,000	7–52	–	13	3–7	5	5	5–9	9	9
100,000 to 200,000	5–41	–	15	4–5	5	5	5–14	–	9
30,000 to 100,000	4–32	–	10	3–7	5	5	3–17	5	7
10,000 to 30,000	3–32	7	7	3–6	3	3	3–15	5	5
All Cities Over 10,000	3–72	7	8	3–7	5	5	3–17	5	5

TERMS OF OFFICE FOR 959 CITY COUNCILS ACCORDING TO FORM OF GOVERNMENT*

Council Term of Office	All Cities Over 10,000	No. of Mayor-Council Cities	No. of Commission Cities	No. of Council-Manager Cities	No. of Town-Meeting Cities
1 year	23	7	0	1	15
2 years	472	341	50	79	2
3 years	72	25	22	14	12
4 years	364	172	108	83	1
5 years	7	0	5	2	0
6 years	9	2	3	4	0
Not Reporting	12	3	1	1	7
Total	959	550	188	184	37

* Washington, D. C., has been omitted because it is governed by Congress and an appointed commission of three.

OWNERSHIP AND OPERATION OF UTILITIES AS REPORTED BY 927 AMERICAN CITIES

Type of Utility	All Cities Over 10,000	Number of Cities: Over 500,000	200,000 to 500,000	100,000 to 200,000	30,000 to 100,000	10,000 to 30,000
Abattoir	36	1	0	3	14	18
Airport	261	12	22	27	58	142
Electric Distrib.	13	1	0	0	3	9
Electric Light	126	4	2	5	25	90
Gas	29	2	2	3	2	20
Gas Distrib.	3	0	0	0	1	2
Market	109	8	14	12	36	39
Port	61	6	10	13	15	17
Street Railway	15	4	3	2	2	4
Water Works	651	12	25	42	151	421
No Utilities	187	0	0	4	31	152
Not Reporting	33	0	0	2	10	21

NUMBER OF EMPLOYEES (EXCEPT SCHOOLS) IN 257 CITIES IN 1934

Population Group	No. Cities Reporting	1930 Population of Cities Reporting	Full-Time Employees (Except Schools)	Part-Time Employees (Yearly Basis)	Total No. Employees (Yearly Basis)	Total No. Employees per 1,000 Pop.
Over 500,000	13	20,828,542	214,418	4,993	219,411	10.5
200,000 to 500,000	25	7,985,454	60,403	6,777	67,180	8.4+
100,000 to 200,000	42	5,437,586	41,038	4,393	45,431	8.4–
30,000 to 100,000	177	8,996,654	59,387	8,294	67,681	7.5
All Cities Over 30,000	257	43,248,236	375,246	24,457	399,703	9.2

AVERAGE SALARIES IN 206 CITIES IN 1934

Population Group	No. Cities Included	Total Employees (Yearly Basis)	Total Salaries & Wages in 1934	Average Salary
Cities Over 500,000	10	179,789	$350,496,401	$1,949
200,000 to 500,000	20	50,963	75,899,319	1,489
100,000 to 200,000	32	30,362	43,547,903	1,434
30,000 to 100,000	144	54,678	69,853,824	1,278
All Cities Over 30,000	206	315,793	$539,797,447	$1,709

SALARY CUTS SINCE 1930 IN 252 CITIES

Population Group	No. Cities Reporting	No. Reporting No Salary Cut	Number Cities Reporting Cut: Total	Full Restoration	Part Restoration	No Restoration
Over 500,000	13	1	12	3	6	3
200,000 to 500,000	24	0	24	2	10	12
100,000 to 200,000	42	4	38	3	11	24
30,000 to 100,000	173	9	164	11	64	89
All Cities over 30,000	252	14	238	19	91	128

CITIES REPORTING RETIREMENT SYSTEMS IN 1934

Population Group	Total No. Cities	No. Cities Reporting	Cities Reporting Retirement System: Number	Cities Reporting Retirement System: Per Cent of those Reporting	Cities Reporting No System: Number	Cities Reporting No System: Per Cent of those Reporting
Over 500,000	13	13	13	100.0	0	0.0
200,000 to 500,000	28	27	26	96.3	1	3.7
100,000 to 200,000	52	43	42	97.7	1	2.3
30,000 to 100,000	217	184	147	80.0	37	20.0
All Cities Over 30,000	310	267	228	85.4	39	14.6

NATURE OF CONTRIBUTIONS FOR RETIREMENT PURPOSES IN 228 CITIES REPORTING A RETIREMENT SYSTEM

	Cities Reporting Retirement System: No.	Per Cent	Supported Jointly by City and Employees: No.	Per Cent	Supported Wholly by City: No.	Per Cent	Supported Wholly by Employees: No.	Per Cent	Supported Wholly by State Aid: No.	Per Cent	Indeterminate as to Contribution: No.	Per Cent
Over 500,000	13	100	12	92.3	1	7.7	0	0.0	0	0.0	0	0.0
200,000 to 500,000	26	100	21	80.8	5	19.2	0	0.0	0	0.0	0	0.0
100,000 to 200,000	42	100	32	76.2	6	14.3	2	4.7	1	2.4	1	2.4
30,000 to 100,000	147	100	83	56.5	36	24.5	9	6.1	3	2.0	16	10.9
All Cities Over 30,000	228	100	148	64.9	48	21.0	11	4.8	4	1.8	17	7.5

COMPARISON OF CITY MANAGER APPOINTMENTS 1930-1934

	1930	1931	1932	1933	1934
Promotions from administrative staff within city	25	31	30	26	22
Promotions from administrative positions outside city	10	13	14	9	7
Entering from non-governmental positions	23	22	31	44	20
Promotions from one city to another	17	18	8	3	5
Former managers receiving appointments	7	11	5	9	16
Unknown					9
Total appointments	82	95	88	91	79
Number of out-of-town appointments	36	39	25	15	25
Per cent of out-of-town to total	44	41	28	17	32

LENGTH OF SERVICE OF MANAGERS INCLUDING ALL CITIES SERVED AS OF DECEMBER 31

Completed Service in Years	Number of Managers in Service: 1930	1931	1932	1933	1934
Less than 1	35	50	50	52	40
1	64	46	65	51	62
2	56	48	36	61	44
3	42	44	40	37	53
4	36	35	40	35	26
5	37	31	27	36	32
6	24	35	26	26	34
7	28	22	35	21	25
8	19	22	14	31	18
9	12	11	25	13	27
10	16	12	14	21	11
11	8	12	10	14	22
12	13	9	10	10	11
13	4	12	12	10	9
14	4	8	8	7	8
15 and over	3	5	12	15	20
	401	402	424	440	447

PER CENT ELECTED AND TENURE OF 17 OFFICIALS IN CITIES OVER 10,000

City Official	Per cent Elected	No. Reporting Tenure of One Year or More	Average Years Tenure for Officials with One Year or More of Service[1]	No. Officials with Less than One Year Service
Mayor	100	812	3.9	53
City Clerk	29	821	8.7	32
City Attorney	11	803	5.5	46
Chief Finance Officer	42	616	6.6	28
City Treasurer	47	775	6.8	34
City Assessor	34	392	8.7	8
Purchasing Agent	15	444	5.3	19
Health Officer	3	727	7.9	34
Director of Public Welfare	22	330	5.3	13
Director of Parks & Recreation	12	550	7.4	15
Director of Public Works	24	446	5.8	18
City Engineer	2	712	8.3	28
Superintendent of Water Works	5	571	10.6	15
Chief of Police	3	778	7.5	51
Fire Chief	1	773	9.9	31
Superintendent of Schools	3	715	9.7	10
Librarian	0	667	11.6	9

[1] Reporting officers were asked to indicate number of years of service in present position to the nearest year. Officials not included in the average may be assumed to have less than six months of service. The average tenure for city managers is 5.8 years which includes all cities regardless of size and all cities served. This figure therefore is not comparable with other figures in this table.

IMPROVING MUNICIPAL ADMINISTRATION

Current Items from the
Public Administration Clearing House

Salary Cuts Restored in 110 Cities

SEEKING further information on how many cities are planning to restore salary cuts to employees this year, the International City Managers' Association, in a bulletin issued on June 3, pointed out that:

Of over 250 cities in the United States having a population of 30,000 or more, 14 reported March 1 of this year that they had not reduced any salaries since 1930, and 110 reported restoring salary cuts either in full or in part.

The fourteen cities that have kept the same salary schedules throughout the depression are: Baltimore; Albany and Troy, N. Y.; Miami, Fla.; Reading and York, Pa.; Wilmington, Del.; Council Bluffs, Iowa; Newark and Springfield, Ohio; Oak Park, Ill.; Quincy, Mass.; San Jose and Santa Monica, Calif.

The seventeen cities whose entire corps of employees are now getting their full-sized pay checks are: Boston, Worcester, Brookline and Lynn, Mass.; Philadelphia, Erie and Allentown, Pa.; Fresno, Calif.; High Point, N. C.; St. Louis and St. Joseph, Mo.; Manchester, N. H.; Marion, Ohio; Pensacola, Fla.; Racine, Wis.; Denver, Colo.; Savannah, Ga. Six other cities have made full restoration to specific groups of employees.

Partial restoration of pay-cuts ranging from 25 to 75 per cent of the original cuts have been made in 87 cities.

The purchasing power of the 1935 dollar, points out Clarence E. Ridley, Executive Director of the International City Managers' Association, is 20 per cent lower than that of the 1932 dollar, and 8 per cent less than the 1930 dollar; so that in cases where salary restorations have been made in full, employees are not getting a decided "raise" in pay. In cities which still have the cuts in effect or are contemplating further reductions, the figures for salaries and the cost of living are going in opposite directions.

Trends in Municipal Finance

IF local governments continue to accept financial support from the state or Federal Government they must expect to subject themselves to control by the lending political subdivisions. This trend, which points toward "a breakdown in the democratic spirit of local government of which we have so long boasted," is a challenge to both financial and political interests, believes Carl H. Chatters, Executive Director of the Municipal Finance Officers' Association, Chicago.

"This situation," says Mr. Chatters, "is much more than a fiscal problem; it is political and social as well. Further surrender of local political autonomy is bound to follow the extension of state grants-in-aid and the greater use of state-collected, locally shared taxes. Municipalities, as a group, must face the facts to determine whether or not the surrender of their powers is either necessary or advisable."

Three other important trends and events in municipal finance are discovered by Mr. Chatters:

First, the growing recognition that the financial control of a municipaliity should be in the hands of a single person or department. This desirable change may be seen in a number of instances, chief among which are a more rigid control over budgets; the increasing number of cities which are putting themselves on a strictly cash basis; and a demand that state governments compel local governmental units to set their financial houses in order.

Second, improvement in the technical methods of accounting and financial procedure. Mr. Chatters says that there is an increasing use of machine accounting and of trained personnel, pointing out that the latter is particularly noticeable in the number of professional accountants being drafted for public office.

Third, the "unprecedented low interest rate on municipal bonds." More and more cities have had the foresight to issue callable bonds refunding their obligations at interest rates which are only a fraction of the rates on the outstanding bonds.

Four Committees to Study Conflicting Taxation

TO answer the riddles of conflicting taxation, it is necessary to decide what functions properly fall upon the Federal, state and local governments. Only then will it be possible to allocate taxing powers so as to avoid the conflicts.

This decision, reached by the Tax Revision Council following a meeting in Washington last week, has led to the appointment of four special committees to undertake the study. The Council, composed of eight Federal officials, eight state officials and eight city and county officials, has as its permanent chairman Henry Morgenthau, Jr., Secretary of the U. S. Treasury.

The four committees and their duties are as follows: (1) Committee on Federal and State Planning—to develop plans for coordinating the Federal and state tax systems and to propose methods for putting such plans into effect; (2) Committee on State and Local Planning—to develop model plans for coordinating state and local tax systems; (3) Committee on recommending a better allocation of functions between the Federal, state and local governments; (4) General Survey Committee—to collect facts and statistics in respect to tax laws, governmental functions and governmental expenditures.

The work of the Tax Revision Council will fall into two major classifications, as decided at the meeting. As an immediate proposition, steps will be taken to correct some of the more glaring inequities imposed by overlapping taxes and to prevent some of the more obvious forms of tax invasion arising from conflicts in taxing authority. The second task will be the revamping of the entire tax system of the nation.

The Tax Revision Council was created by The Second Interstate Assembly, sponsored jointly by the Council of State Governments and the American Legislators' Association. Henry W. Toll is Executive Director of each organization.

Experience of Kansas Cities with "Cash Basis" Law

KANSAS cities have materially reduced the costs of government and greatly strengthened their financial positions since the state passed its Cash Basis law in 1933, according to L. M. Barnard, Director of Auditing and Accounting of the League of Kansas Municipalities.

Writing in the current issue of *Municipal Finance*, official journal of the Municipal Finance Officers' Association, Mr. Barnard says that before the enactment of the Cash Basis Law, it had been the custom for many years for municipalities to spend without considering their actual income. To take care of current operating expenses they frequently issued warrants against revenue not yet actually received, a habit resulting in an ever-growing volume of interest-bearing obligations which passed on to succeeding generations of taxpayers.

The Cash Basis Law provided that all municipalities should operate on a cash basis. Under this law no purchase orders may be issued or contracts awarded until cash is actually on hand to meet the obligations. The act does not prohibit the cities from issuing bonds for improvements.

Each Kansas municipality is now required to maintain a record of all purchase orders and contracts, together with the time payable, the amount, and the terms. This is an entirely new phase of accounting for the local governments; previous to enactment of the law, they did not recognize obligations until the time of their actual payment.

The most conspicuous result of the law is the marked reduction in governmental costs, brought about largely by the more serious consideration given to planned fiscal programs. City officials, also, have gained a more intimate knowledge of municipal affairs through the

preparation of budgets and the conduct of the public's business on the pay-as-you-go basis. Maintaining a record of orders and contracts has forced upon the municipalities a strict regulation of purchases. A more prompt and more accurate distribution of taxes to the minor political divisions has also been brought about.

"The manner in which the Cash Basis Law has been received by public officials and their attempts to meet fully the requirements of this restrictive legislation," comments Mr. Barnard, "have been gratifying even to the most ardent sponsors of the law. It is recognized by all classes as being basically sound and has withstood all efforts for modification or repeal."

Recent Developments in Council-Manager Government

NEARLY as many cities adopted the council-manager plan of government during the first five months of 1935 as during the entire year of 1934, according to the International City Managers' Association. Six cities and one county adopted the council-manager plan in 1934, bringing the grand total under this form of government in the United States to 432. Since January, 1935, five cities have voted upon and adopted the plan and two others, reconsidering, have voted to retain it.

Cities voting "yes" on the plan include: Trenton, N. J.; Huron, S. Dak.; Wheeling, W. Va.; Troy, Vt.; and Ashland, Maine. Citizens of Kenosha, Wis., asked for the sixth time whether they desired to continue under council-manager government, declared themselves in its favor. Toledo, Ohio, at a special election on May 28, defeated a proposal to repeal the council-manager charter adopted last November, which will not become effective until January 1, 1936.

Council-manager proposals have been defeated this year in Braintree, Mass.; Raleigh, N. C.; Kern County, Calif.; and Syracuse, N. Y. Hinton, W. Va., lost its council-manager charter by action of the Legislature.

Communities which will consider the plan in the near future are Beacon, N. Y. (11,933); Miamisburg, Ohio (5,518); and Canon City, Colo. (5,938). Petitions requesting the Council to call a special election for considering the question are being circulated in Clinton, Iowa (25,726), and Norton, Va. (3,077). In New York City the Citizens' Union, the Merchants' Association and the League of Women Voters have advocated adoption of the council-manager form at public hearings held by the Charter Revision Commission.

The South Dakota Legislature this session passed an enabling act providing for the orthodox council-manager plan of government. In Nevada, two bills to enable the citizens of Reno to adopt it were defeated in the Legislature. In Pennsylvania, several bills which would enable first-, second- and third-class cities to adopt the manager plan are under legislative consideration. The Maine Legislature has enacted council-manager charters for six municipalities, which must vote on the adoption of the plan before it can be made effective.

Eastern States Move to Reorganize Local Governments

DEFINITE steps toward setting up more efficient and less costly local governmental machinery have just been taken in the five populous eastern states of New York, Connecticut, New Jersey, Pennsylvania and Delaware, according to Robert M. Paige, Secretary of the Governmental Research Association.

The New York Legislature, anticipating the approval of voters to an enabling constitutional amendment up this fall, has passed an act which provides optional forms of county government. Under the terms of this act citizens of a county may adopt a businesslike form of government comparable to that in cities which have city-manager charters. New York thus is following the lead of California, Virginia, Nebraska, Ohio and other states which have opened the door to modernization of county government. New York will also soon have under way a study of state aid. The state now devotes more than half of its revenues to assisting local governments with such functions as education, highway construction and unemployment relief. This situation indicates that a careful study is needed of the present allocation of functions as between the state on one hand and the cities, counties and towns on the other.

In Connecticut a special commission which completed its work early this year is recommending numerous laws which would require local governments to observe standard accounting, budgeting, reporting and other financial practices. Another commission is now studying the reorganization of the state government. In New Jersey, Princeton University has begun a comprehensive survey of the possibilities for improving local government organization. The highly urbanized northern part of this state especially has its cities, counties, towns and special districts "jumbled together in incredible confusion." Ten large business concerns in the state are financing the study to bring order out of the chaos.

In Pennsylvania, where a comprehensive survey of local government was recently completed by a group of men drawn from the faculties of the major universities of the state, the Legislature has just authorized a special commission to draft specific recommendations and legislation for reorganizing county, city and township government. Delaware, at the legislative session recently adjourned, followed the lead of North Carolina, Michigan and several other states by transferring to the State Highway Department the job of maintaining and constructing county roads. Several years ago Delaware centralized in the state government responsibility for the entire school system of the state.

"While some states, such as Delaware and North Carolina, are experimenting with centralized administration of local functions to bring about efficiency," comments Mr. Paige, "others, like New York and Ohio, are trying to modernize local government without so great a degree of centralization. The recipe for efficiency may vary in different parts of the country."

Anti-"Racket" Rulings

CHAIN letters have become such a nuisance in two western cities that their Councils have passed emergency ordinances outlawing the "racket" by legislating against persons who turn out the material on a mass production basis.

According to the *U. S. Municipal News*, bulletin of the American Municipal Association and the United States Conference of Mayors, a fine of not more than $500 or six months in jail or both await violators of the new law in Los Angeles. Portland, Ore., has passed a similar ordinance, and Long Beach, Calif., is said to be considering one. The Los Angeles ordinance defines the chain letter "racket" as being a system or scheme "operated by letters or cards or other printed instrumentality, or orally, whereby it is represented that on payment of money they shall receive a greater sum of money, under any system or scheme providing for the payment when a name appears in rotation at the top of or in any other designated position in a designated list of names."

Also in the line of new municipal legislation to "protect" citizens' pocketbooks, is the license regulation recently imposed by the Lynn, Mass., Council to control "beano" and similar games. Proceeds or charges for admission or participation in lotteries or games of chance must be donated solely to the charitable, civic, educational, fraternal or religious purpose stated in the application for special permits, which must be obtained from the Mayor.

Richmond in its war on promoters of the "numbers" or clearing-house racket is considering an ordinance raising the maximum penalty from $100 to $500 and/or a jail sentence of six months.

Norfolk, Va., has adopted an ordinance licensing dealers in old gold and requiring daily reports on transactions to the Director of Public Safety. A Tampa ordinance fixing a $250-a-day license for jewelry auction sales by any one not two years in business locally was recently tested in the Circuit Court and held invalid, the Judge deciding that it involves a prohibitive tax. A provision taxing itinerant auctioneers $50 a day was upheld.

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FORWARD STEPS

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

Bellingham Speeds Interest Saving

BELLINGHAM, WASH.—Within seventeen hours after the third reading of the required ordinance, the officials of the city of Bellingham sold $256,000 of water refunding bonds, at the lowest coupon rate of any municipal bond in the state; drove a hundred miles to Seattle, signed, sealed and delivered the bonds; obtained the money and started home. And thereby hangs the following tale.

In 1925, the city of Bellingham issued serial revenue bonds in the sum of $265,000, for the purpose of bringing in a new water-supply main from Lake Whatcom, the source of supply for the northern portion of the city. The southern portion of the city at that time was supplied by a private water company. These bonds were sold at par and drew 5 per cent interest.

Also in 1925, by vote of the people, the city purchased the holdings of the Fairhaven City Water Power Co., which served the southern portion of the city, consolidating the water systems of the entire city under the ownership and control of the city. To provide the funds for this purchase, the Water Department issued bonds at par in the sum of $165,000, due in 1946, with a 5 per cent coupon.

Both issues of bonds contained a clause which permitted the city, at any time after five years from the original date of issuance, upon any interest-paying date, to call any or all of the bonds then outstanding, providing that published notice of the intention to call was made in the official newspaper of the city at least thirty days before the interest-paying date. With the stiffening of the municipal bond market and the general lowering of interest rates the latter part of 1934, it became apparent that it would be desirable for Washington municipalities to refund their utility bonds and to effect a material as well as a needed saving.

The Washington State Legislature convened early in January, 1935. Several bills covering the subject of refunding utility bonds were introduced, and for some time it seemed that they would die aborning in the committee rooms. Meanwhile, in Bellingham the Sinking Fund Commission, composed of the Mayor, Comptroller, Treasurer, Chairman of the Councilmanic Finance Committee, on January 28, contemplating the passage of the refunding legislation, recommended to the City Council the passage of the necessary ordinance which would permit the refunding of the outstanding water revenue bonds in the amount of $256,000. The City Council, acting upon the recommendation, adopted such an ordinance, which became effective on the 4th of February, 1935.

Immediately upon the effective date, the Sinking Fund Commission called for the sale of these bonds and, pursuant to this call, they found themselves on February 25, at 2 P. M., with six representatives of bonding houses present and with no state law passed, and with the City Attorney, just back from the capital, with the cheering news that the proposed bill had not been reported out of committee and that it did not contain an emergency clause. And that emergency clause was very necessary to the city of Bellingham, for the existing bond issues had interest payment dates of February 27 and April 1, respectively, and under their optional call feature the city had called for the April bonds and made arrangements with the local holders to secure the February bonds in the event of a successful refunding operation.

The Commission returned the bids unopened, recommended that the Council refund if the bill ever passed, and gave up for six months.

However, after conference at Olympia with the legislators, the bill was finally passed, on March 13, with the emergency clause attached. Pending the signature of Governor Martin, which was given on March 18, the city started all over again, and with time growing shorter, all proceedings went into high gear. Special meetings of the City Council were held to permit the passage of a new ordinance, and three readings subsequent to the effective date of the act; bids were called for and opened, with the understanding that the city would deliver the bonds to the best bidder as soon as the ordinance was effective.

And finally, on April 1, 1935, at 9 P. M., the City Council unanimously passed the ordinance, the Mayor signed it, and it became effective immediately. The Council recessed, and the Sinking Fund Commission held a special meeting and recommended the sale of the bonds to the previous low bidder. The Council reconvened and ratified the sale by resolution.

The next morning the Comptroller completed the transcript of proceedings, and that afternoon at 2 P. M. a hundred miles away in a Seattle bank, he and the Mayor signed and sealed the bonds, while the bonding attorney examined and approved the transcript and the City Treasurer received and receipted for the $256,000. The time between the passage of the ordinance and the delivery of the money was seventeen hours, and the saving that was effected amounted to $32,745.20 over the next ten years.

The bonds sold at par, the first $75,000 at 2 per cent, the next $103,000 at 2½ per cent, and the last $78,000 at 3 per cent, the average rate being 2.694 per cent, and the final maturity 1946, the same as that of the original bonds. The first maturities of $75,000 at a 2 per cent coupon represent the lowest coupon rate of any municipal bond in the state of Washington.

J. HAROLD STEVENSON,
Comptroller.

A Well-Built Highway to Civic and Economic Prosperity

CANTON, OHIO.—Looking its assets and liabilities intelligently in the face, Canton has discovered that sound industrial recovery rests upon a base of civic excellence in local government and administration, of facilities for health and sanitation and comfort, of provision for broad and varied educational opportunities, of public safety, of recreation for all ages, and still other elements of attractiveness and convenience on which to build. A new outlook was given to the citizens during the recent Chamber of Commerce budget campaign that was conducted by the American City Bureau.

An important part of this highly successful work was the group meeting program to which the citizens responded with as great enthusiasm as shown in the old-fashioned town meeting. The idea was presented of making the city so fundamentally and esthetically attractive to new industries and residents that it would be its own impelling force toward prosperity. Out of the discussions at these meetings have grown two civic enterprises: a 5,000,000,000-gallon conservancy dam; and a $500,000 park and playground development. These undertakings are the answers to questions which the citizens asked themselves: What does industry need most? (Answer—Water and plenty of it); What do residents ask of a city? (Answer—Beauty, happiness, and a place to play).

The city is ready to assume its fair share of the cost of the dam, for which it anticipates Federal aid under the Public Works program. The park project, now fully under way, will be, when completed, one of the most outstanding in Ohio. One of the parks will cut through the entire city, a distance of more than five miles.

Already Canton has come a long way up from the bottom of the valley, when only 6,800 workmen were employed in its industrial plants. Today there are 17,600 industrial workers employed, representing approximately 80 per cent of the city's all-time employment peak. Within recent weeks three new factories have moved to Canton and have begun operations.

DALLAS L. HOSTETLER,
Secretary, The Canton Chamber of Commerce.

An Intelligent Street-Numbering Campaign

ROCHESTER, N. Y.—The campaign of the City Directory Committee of the Rochester Chamber of Commerce to improve the legibility of Rochester's street numbers is progressing steadily. Two months ago the Committee, mainly through the newspapers, called public attention to the desirability of legible street numbers, and pointed to the city ordinance that says that street numbers *must* be legible. This was followed by a Boy Scout survey to determine the street numbers not readable from the sidewalk.

With this specific information in hand, Commissioner of Public Works John Morrison volunteered to send his eight sidewalk inspectors into the field to notify erring residents that the condition must be corrected within a limited time. The publishers of the city directory, Sampson & Murdock Co., through their Rochester Manager, Harry C. Plummer, are cooperating in securing correct street numbering conditions to make the city directory accurate and more nearly complete. Canvassers are making the rounds of homes and business places gathering information to be included in the directory, and indicating on cards those places where numbers do not conform to the city ordinance.

—From *Rochester Commerce*, June 24, 1935, published by the Rochester Chamber of Commerce.

Illustrations by courtesy of Art Jury, Philadelphia

AN APPROVED THEATER ENTRANCE WITH NO PORTION OF MARQUISE OR SIGNS PROJECTING MORE THAN 12 INCHES BEYOND THE BUILDING LINE

UNSATISFACTORY DESIGN OF ADVERTISING FEATURES, RESULTING IN UNSIGHTLINESS AND CONFUSION

Private Structures on or Over Public Space

PHILADELPHIA, PA.—In its Twenty-fourth Annual Report (for the year 1934) the Art Jury of Philadelphia has reproduced the accompanying photographs, which tell their own story of striking contrast between the unsatisfactory and the approved in theater entrances. The obligations of good taste and public safety are involved in such private use of public space.

Destroying an Army in Its Tents

RIDGEWOOD, N. J.—When the warm spring sun coaxed the voracious tent caterpillars out of their nests to descend in billions on shrubs and young trees throughout the entire state of New Jersey, the community of Ridgewood was to a great degree free of this pest. Ridgewood is noted for its beautiful lawns and gardens and should provide the tent caterpillar with an ideal spot for food and propagation. But Ridgewood is also noted for its fine community spirit and a Shade Tree Commission which is determined to preserve the park-like beauty for which the town is famous.

When the serious ravages of the tent caterpillar were noted throughout the northern part of the state last year, the members of the Ridgewood Shade Tree Commission were quick to act in fighting the pest. Public sentiment was aroused

through articles and editorials in the two Ridgewood papers, and a local ordinance was enforced making it compulsory for property owners to burn or otherwise destroy any tent caterpillar nest on their property. However, this did not take care of the swarms of caterpillars in vacant lots or along the roadside. The Shade Tree Commission convened again, and finally an excellent plan of action was mapped out, in the form of a community-wide campaign against the tent caterpillar.

The campaign opened September 8 and provided for the payment of 5 cents for every 100 egg masses turned in by Ridgewood school children. The Commissioners' offices in the Municipal Building were open every Saturday morning between the hours of eight and noon as a "receiving station." It was also announced that attractive cash prizes would be given at the close of the campaign to the girls or boys turning in the largest number of the egg masses. The number of these prizes depends upon the amount of money realized from donations received from various civic groups which promised to contribute to the campaign. The campaign closed as soon as the trees came into leaf this spring.

Ridgewood's young citizens rallied to the battle call with keen enthusiasm and up to February 1 had turned in the amazing number of 500,000 egg masses. Estimating an average of 300 eggs per mass, this means that over 150,000,000 caterpillars have been destroyed. Another splendid feature of the campaign was that its spirit carried over into communities adjoining Ridgewood until the officials in practically every bordering town were induced to offer similar rewards to the school children in a fellow drive against the insects.

Throughout the long fall and winter months bright young eyes were busily scanning the bare branches of the wild cherry tree or small apple trees in the hopes of finding that small, dark glutinous mass which would have been transformed in the spring into a crawling, writhing colony of worms marching out toward every available leaf and tender shoot devouring it. Oddly enough, the girls led the boys in the contest and are intensely proud of their records. The local press has maintained its interest in the drive, and every week lists of the school children competing and the number of egg masses collected to date were published.

The Ridgewood Shade Tree Commission, which has not only had to contend with the influx of caterpillars but has been giving much effort toward the eradication of the Dutch elm disease and the Japanese beetle, has been deeply appreciative of the interest shown in the campaign. The Commission has been particularly pleased that its plan has been adopted in the towns bordering Ridgewood. As one member remarked: "It can readily be seen that a great step has been made toward the elimination of this pest at a small cost to the taxpayers, and that our plan has stirred up action in neighboring communities. However, only by a concerted movement over a large area can any appreciable benefit be obtained from the menace of this pest, and we hope that more and more towns will join with us."

And thus "all the green things growing" in Ridgewood and neighboring towns this spring have enjoyed a happier existence. And woe unto the little tent caterpillar that dared to put in an appearance. But then, he may be allowed to go his way unharmed and enjoy his rôle as a rare curiosity. Such as he are likely to become rare curiosities in this section, for so satisfactory have been the results of this first campaign that the Commission has decided to continue the warfare along the same lines next fall.

HENRY LEUNING,

Superintendent, Village of Ridgewood Shade Tree Department.

The New Urban Center of Villeurbanne

TO the east of Lyons, France, lies the industrial suburb of Villeurbanne, and here, says *The Architectural Forum* in its June, 1935, issue, is perhaps the best municipal housing in the world. The story is fully given and splendidly illustrated in that number of the magazine. Morice Leroux is architect for the housing development and the Palace of Labor, and Robert Giroud, architect for the City Hall.

Since 1928 the dream of Dr. Lazare Goujon, Mayor of Villeurbanne, has been coming true: there is the nucleus of a new town; the Town Hall is in the right place, in the topographic center and in the population center, because new and adequate housing accommodation and the civic center are in the same location; and a needed social and recreational community center has been provided.

The Avenue de l'Hotel de Ville, almost 1,000 feet long and over 90 feet wide, is really a central court for the housing group, widening at the north end into a small plaza and creating an entrance to the whole development, flanked by two apartment towers; the whole providing an axial approach to, and proper perspective for, the Hotel de Ville itself. Behind this, to the south, is the Place Albert Thomas, with two shallow pools, and still farther to the south the Palais du Travail, or Palace of Labor, the community center. Thus the entire development comprises a park, a community center, a town hall, and six blocks of apartments.

THE TOWN HALL OF VILLEURBANNE (LEFT) AND THE MUNICIPAL THEATER (ABOVE)

Chief C. A. Peterson, Englewood, N. J., Department of Police, at the microphone of his RCA Terra-Wave Police Radio Transmitter.

DEPARTMENT OF POLICE
OFFICE OF THE CHIEF OF POLICE

THE CITY OF ENGLEWOOD
ENGLEWOOD, N.J.

City Clerk
Scranton
Pa.

May 9, 1935

Dear Sir;

In July 1933 we installed the RCA Victor Ultra High Frequency transmitter and equipped five patrol cars with receiving sets. We have always had very satisfactory results with this type of police radio. It works equally well in all kinds of weather conditions and strong signals are received in any and all parts of the city.

We find that in using this ultra high frequency there is no interference, either in sending or receiving signals, with any other station and there are several in the immediate vicinity.

We have found that the cost of operation is much below the cost of our old signal type, i.e., telephone call boxes and signal horns and much more satisfactory. The only cost involved is for electric current used and replacement of tubes, which replacement amounts to about $50. per year.

I do not hesitate to recommend the RCA Terra Wave radio to any Police Department, basing my recommendation upon our actual experience with it.

Very truly yours

P/M

C. A. Peterson
Chief of Police

"I recommend RCA Terra-Wave to any police department!"

—*Englewood Chief of Police*

Sturdy dependability—freedom from interference with other police signals—low first cost and low operating cost—strong signals received everywhere in all kinds of weather! These are reasons why Chief Peterson of Englewood writes so enthusiastically to other cities. By superior performance in scores of towns and cities, Terra-Wave is winning increasing prestige among police departments.

And now 2-way communication doubles efficiency!

The new RCA Terra-Wave Mobile Transmitter becomes Public Protector Number One! This latest marvel of radio science strikes a death blow at Crime—because now radio cars communicate instantly with Headquarters, reporting direct from the scene of action.

You add this amazing development to your Terra-Wave system by simply installing the new 25-watt Mobile Transmitter in each of your radio cars. This fine, compact, rugged, low-cost equipment is the most sensational contribution to crime control since the introduction of RCA Terra-Wave to the police of America!

Sales and Service Representatives in Principal Cities

RCA TERRA-WAVE POLICE RADIO SYSTEM

RCA MANUFACTURING COMPANY, INC.—CAMDEN, NEW JERSEY

A Radio Corporation of America Subsidiary

Slum Clearance and Low-Cost Housing as "Public Uses"

THAT slum clearance and low-cost housing contain no characteristic or ingredient whatever which the courts have held to be inconsistent with or exclusive of public use, is the well-supported argument presented last month in a brief filed in the United States Circuit Court of Appeals for the Sixth Circuit, on appeal from a decision of the United States District Court of Western Kentucky. In the decision appealed from Judge Dawson had denied to the Federal Government the right to exercise its power of eminent domain for a 10-acre housing project in Louisville.

The question under discussion is whether slum clearance and low-cost housing projects may be considered public uses within the meaning of the Federal constitutional limits. The brief, submitted on behalf of several civic bodies and housing authorities as *amici curiae*, was prepared by Alfred Bettman, of Cincinnati, as attorney, with Charles Abrams and Ira S. Robbins, of New York, and Ernest J. Bohn, of Cleveland, as associate counsel.

In discussing the elements or factors in the purposes of the expropriation of private property which the courts have held to be consistent with the constitutional meaning of "public use," the brief points out that:

(a) Public use is not limited to cases of occupancy by public officials themselves in the performance of their public duties.

(b) Public use is not limited to occupancy by or consumption by large numbers of persons.

(c) Public use is not limited to cases where the occupancy or use of the proposed structure, facility or service will be open to anybody and everybody.

(d) Public use is not limited to business purposes or economic purposes or convenience purposes.

(e) Payment of rent or other compensation for use does not exclude public nature of use.

(f) Public use is not restricted to past forms but expands to meet new needs.

As affirmative factors or elements of public use which are present to an exceptional degree in slum clearance and low-cost housing, the brief shows that:

(a) Present housing conditions in American cities, including Louisville, are productive of disease, high mortality rates and low degrees of health and physical well-being. A large percentage of the population is directly affected. Gradual removal of these existing conditions on a large scale and the building of health-producing homes are not only promotive of public health, but absolutely essential to any acceptable American health standard.

(b) Slum areas and bad housing are productive of vice and crime. Clearance of slums and building of modernized homes for low-income groups are therefore promotive of public morals and general welfare.

(c) Slums and bad housing throw a heavy direct financial burden on the whole community.

(d) Public action, including the use of eminent domain, is a practical necessity for the reasons:

1. Eminent domain is necessary for land assembly.
2. Private industry cannot meet the need.
3. Housing regulation is completely inadequate.
4. Housing legislation enacted by many states and the nation is evidence of the necessity for eminent domain for and public construction of housing for low-income groups.

(e) Slum clearance and low-cost housing have the public factor that they involve city and regional planning and replanning, and always involve the locating of and integration with streets, recreational spaces and other public spaces.

(f) The slum clearance and housing problem is public in its scale.

The brief cites reclamation, drainage and irrigation projects as public uses for which the courts have authorized the exercise of eminent domain to make areas more fit for their occupants and to promote the social and economic welfare of the general public. Surely, it is pointed out, the removal of insanitary and other evil conditions in slum areas, the production of healthier and sounder habitation for the occupants of the areas, and the promotion of the economic and social welfare of the whole public are at least equally public uses.

"Indeed, unless we are to restrict appropriation of private property to cases in which the improvement is to be physically occupied by public officials, a restriction long ago repudiated by every court in the nation, it is hard to imagine anything more public in factors, nature, causes, remedies, in necessity for public action and for eminent domain, in scale, in relationship to the public health, morals, prosperity and welfare than are slum clearance and the supply of decent housing within the means of the low-income families. In the light of what we now know about our housing conditions and the requisite remedies, it is inconceivable that our Constitution could be interpreted as withholding those remedies from the American people."

The case also involves the question of whether or not the Federal Government, under the powers reserved to it by the Constitution, may engage in slum clearance and the construction of low-rent housing projects, irrespective of whether or not the exercise of the power of eminent domain is necessary. The briefs of counsel for the Federal Government and the counsel for the property owners discussed this question at length. A decision in the case is expected shortly.

Urban Land Planning and Utilization

A List of Principles Submitted to the American City Planning Institute by Its Committee on Research in Urban Land Policies, as Amended and Adopted by the Institute's Annual Meeting in Cincinnati, May 19, 1935

1. The development of every state, county, and municipality should be guided by an appropriate official planning agency.

2. All such boards should be competently manned and adequately financed.

3. There should generally be more effective cooperation of the city or state government and of citizens' organizations with the planning body.

4. Better coordination should be developed between planning and tax and assessment policies.

5. All urban territory should have both an official plan and a zoning ordinance to control its future development.

6. Practically all existing city plans and zoning ordinances need modernizing to provide, among other things, for:

(a) Less overcrowding of individual parcels of land
(b) A smaller percentage of the total area of the city to be zoned for business, and a larger percentage to be devoted to public recreation areas
(c) More effective control of real estate subdivisions, both qualitatively and quantitatively
(d) The type of zoning which will encourage the planning and development of entire blocks or neighborhoods, rather than of individual lots

7. Every city having slums or blighted areas should plan for their early rehabilitation; such planning to give careful consideration to desirable changes in the uses of such areas.

8. Housing for the lower economic groups will increasingly involve large-scale planning of community neighborhoods, rather than the building of scattered single homes or tenements.

9. Most cities could better afford to expend substantial sums on re-development within their corporate limits than to allow blight to spread for lack of such expenditures.

10. Consideration should be given to increased municipal ownership and development of land, and to pooling and replotting of privately owned areas.

11. Municipalities should be urged to acquire and retain in public ownership as much as possible of vacant or inadequately improved land now tax-delinquent, initiating such procedure by first acquiring those available properties which afford the greatest opportunity for successful demonstration of planned redevelopment, and should make careful studies of the best possible future uses of such land.

12. The carrying-out of these principles would be greatly facilitated by more scientific methods of real estate taxation, and by wider and less costly use of the power of eminent domain and of the device of excess condemnation; thereby controlling land prices more effectively, stimulating rational land uses, and enabling governmental units to retain or recover a larger percentage than at present of community-created land values.

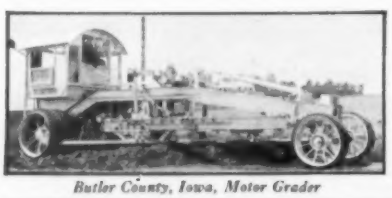
In submitting its report, the Committee Comprising Frederick L. Ackerman, Tracy B. Augur, Jacob L. Crane, Jr., Myron D. Downs, L. Segoe, and Harold S. Buttenheim, Chairman) stated its recognition of the fact that, for most effective results in the years ahead, there is need for more original research and studies based on practical experience. In the opinion of the Committee, however, the principles enumerated and methods advocated above have been established by previous research or experience to an extent great enough to warrant prompt action and experimentation in practice, simultaneously with, instead of subsequent to, more comprehensive studies of the broad principles and detailed practices involved.

HOW ELKHART COUNTY CUTS ROAD MAINTENANCE COSTS

• • • • WITH AMAZING NEW TIRES

● What a difference! That's what they said when Elkhart County, Indiana, changed over a tractor from solid tires to Z-P Pneumatics.

Let the man who has been driving that tractor for a year tell the whole story. "Since we have had Goodrich Zero Pressure Tires on this tractor, I can pull through mud, sand or snow without any trouble. I've had this tractor in places that looked impossible to get through, but I always make it. I get more work done because the tractor rides easier, handles better. At the same time fuel consumption is lower." Other users report that they do four days' work in three—that they save a fourth on fuel.



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You can make similar savings. These amazing tires can't puncture—can't go flat. A giant air cavity underneath the big cleat tread cushions the load, eliminates the bouncing of air pressure tires. The lug type self-cleaning tread has 30% more traction! That's the kind of tire that gets work done in a hurry—that saves real money.

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Put an end to tire troubles on graders, mowers, maintainers and tractors. Get the revolutionary Z-P (Zero Pressure) Pneumatics.

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SPECIFY Z-P PNEUMATICS ON ALL YOUR NEW EQUIPMENT

Items and Letters from the Month's Mail

Unprofitable Plants?

To the Editor of THE AMERICAN CITY:

We are interested in the request by the city of Littlefield, Texas, in your June issue, for information concerning any place in the United States where "municipal ownership of public utilities has proved a failure or was not a success."

The village of Owego is now having an electrical survey made and will shortly be in position to decide whether or not to build a municipal electric plant. We also are much interested to know whether there are places in the United States that have not been successful in the operation of a municipal plant.

Any information regarding this subject would be much appreciated.

EDWARD C. TILL.
Mayor of Owego, N. Y.

Landscaping Muskegon's Park

To the Editor of THE AMERICAN CITY:

Concerning the Muskegon swamp in Michigan, noted in your June issue, the landscape work, which our company did, totaled around $30,000. We took the rough work as the Highway Department had left it, and developed the entire property, moving in unusually large materials selected to make the landscape pleasing and naturalistic. These materials included many kinds of dogwoods, flowering shrubs, white pines, American arborvitaes, taxus, sycamores, elms, flowering crabs. Practically all of the material is of the kind that is handled by big tree movers. None of the stock was exceedingly large, the elms being 8 inches in diameter, the pines up to 25 feet in height.

BENJAMIN J. GREENING,
President, The Greening Nursery Company, Monroe, Mich.

Color Music a PWA Prospect

To the Editor of THE AMERICAN CITY:

I have read the article, "Color Music for Public Parks," with considerable interest, and I believe that where such a display is feasible, it will be of considerable interest to park patrons.

It occurs to me that various park systems throughout the country could perhaps secure Federal aid in installing such a system, for I believe that it could be classed among permanent park improvements, for which the Government is spending large sums of money. Unlike many other improvements, a lighting system such as this article describes could no doubt be made to pay for its installation cost and also for its maintenance.

L. C. PALMER,
Forester, Kent County Road Commission.

Death of B. F. Mueller

THE widespread circle of personal and business friends of Bernhardt Frederic Mueller of Port Huron, Mich., were terribly shocked by his death in the hospital on May 24, following an automobile accident a few days previously.

"Bud" Mueller, as he was affectionately called by his multitude of friends and acquaintances, was the son of Mr. and Mrs. Oscar Mueller and had lived in Port Huron since 1917. He worked in various divisions of his father's plant and rose to the position of Vice-President and Treasurer of the Mueller Brass Company and its subsidiaries.

The following tribute was paid to him by his fellow workers in the Mueller Brass Company:

"The death of Bernhardt Mueller has removed from our midst one who was an understanding friend to all of us. It has left a gap in our ranks that seems impossible to fill. To many of us who have had the privilege of working with him, both for company and community, he leaves a memory to be cherished.

"We can truthfully say that we have never had the privilege of knowing anyone fairer, or more broadminded—always willing to relinquish his own views, if the facts presented were honest and practical. We will always remember him as capable, just, and above all, human.

"What he was he gave; gave with such ease and exuberance that we think it may be said without exaggeration that wherever he moved he seemed to radiate vitality and charm. He was, as we here know, a strenuous fighter. He has left behind him no resentments and no enmities; nothing but a gracious memory of a manly and winning personality; the memory of one who served with unstinted measure both the community and the business.

"He has been snatched away in what we feel was the full tide of a buoyant life, still full of promise and of hope. What more can we say? We can only bow once again before the decrees of the Supreme Wisdom. Those who loved him—and there are many—in all schools of opinion, in all ranks and walks of life, will surely miss him—and remember him as a man's man among men."

Recent City Manager Appointments

PAT M. BURDETTE, a local newspaper publisher, has succeeded George L. Hackney as City Manager of Asheville, N. C.

James Goudie, former City Engineer and Assessor, has been appointed City Manager of Ironwood, Mich., to succeed Dow I. Sears, who resigned recently to become the first City Manager of Huron, S. Dak.

J. B. Marshall, a local engineer, was appointed City Manager of Charlotte, N. C., to succeed J. B. Pridgen.

Charles Fithian, former City Clerk, has been appointed acting City Manager of Lexington, Ky. Paul Morton, former Manager of Alexandria and Petersburg, Va., and Lexington, Ky., has been appointed first City Manager of Trenton, N. J.

Hugh A. Pennebacker has been appointed City Manager of Tulare, Calif., to succeed W. M. Brown.

Robert W. Palmer has been appointed first City Manager of Ashland, Maine.

CLARENCE E. RIDLEY,
Executive Director, The International City Managers' Association.

The Municipal Bond Market

Recent sales of new issues from the June numbers of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$3,000,000	Massachusetts, Emergency Public Works	1.75	4.67 Avg.	1.58
450,000	Hennepin Co., Minn., Funding	1.75	2-6 Ser.	1.67
320,000	Bethlehem, Pa., School, Operating Revenue	1.5	1-5 Ser.	1.46
1,000,000	Virginia, Certificate of Indebtedness of 1935	2	10	1.92
400,000	Schenectady Co., N. Y., Road Improvement	2.40	15.75 Avg.	2.37
1,500,000	Pittsburgh, Pa., School	2.5	1-30 Ser.	2.41
670,000	Seattle, Wash., Refunding Water System	2	4.33 Avg.	2.45
200,000	Kansas City, Mo., Water Works, Park and Boulevard Improvement	2.5	2-11 Ser.	2.46
322,700	Frederick Co., Md., Refunding	2.75	16.66 Avg.	2.58
160,000	Kalamazoo, Mich., School, Refunding	2.60	4-19 Ser.	2.59
374,000	Indianapolis, Ind., Sanitary District, Sewer	3	18 Avg.	2.94
1,382,000	Paterson, N. J., Water Supply of 1935	3.5	21.16 Avg.	3.47
192,479	Eugene, Ore., Refunding Assessment	3.75	6 Avg.	3.68
300,000	Cleveland, Ohio, Paving and Sewers, City's Portion	3.75	6.25 Avg.	3.69
170,000	Flint, Mich., School, Refunding	4	5.33 Avg.	3.91
300,000	Johnstown, Pa., School, Refunding and Improvement	4.25	15-20 Ser.	4.23
645,000	Phoenix, Ariz., Water, Refunding	4.5	12.66 Avg.	4.49
480,000	Teaneck, N. J., Funding	4.25	12.166 Avg.	4.65

TRAFFIC SAFETY *IS* controllable

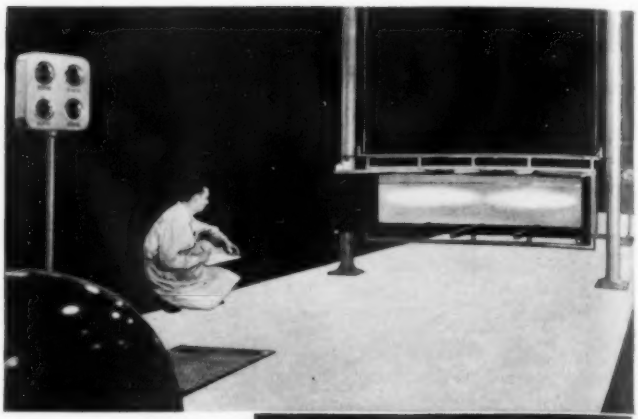
There is nothing that will appeal to the American voter more surely and powerfully today than real, resultful ACTION in reducing traffic accidents. City ordinances—lectures—even big accidents—do little to make people more careful. But you *can* make every car and truck on your streets safer!

Quick, accurate, and fully self-supporting *Compulsory Inspection!*

The Municipal Safety Line is the answer! And Bendix, pioneer and ever foremost in the advancement of motoring safety, provides the ideal, scientifically accurate equipment.

Bendix Civic Safety Clinic *turns a car off the line every minute.* Shows exact stopping power *of each brake.* Tests wheel alignment, each wheel separately and accurately! Tests headlights for level, focus and strength. The driver sees the results on big, plain dials. Car factories employ similar Bendix equipment to test new cars before shipment.

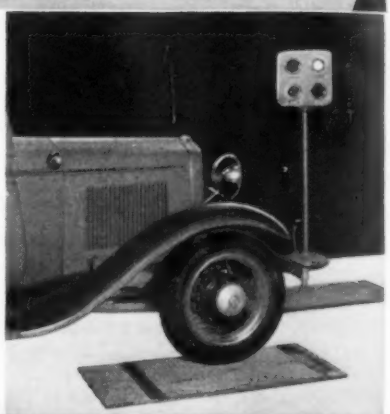
A small fee makes the Bendix Civic Safety Clinic self-liquidating. Send for full details, prices, tested plans of operation.



Above: *Tests headlights for focus, level, intensity . . . on a screen . . . and in broad daylight!*

Right: *Tests wheel alignment, caster, camber, toe-in, entire steering geometry, precisely.*

Below: *Tests each brake separately—by full wheel revolution under electric power . . . shows total stopping ability . . . shows up "out-of-round" drums. TESTS TRACTOR AND TRAILER TRAINS.*



New BENDIX CIVIC SAFETY CLINIC

BENDIX PRODUCTS CORPORATION
401 Bendix Drive, Dept. A-7, South Bend, Ind.

Send me at once full details about Civic Safety Clinic Equipment, prices, operating plan, etc.

Name.....

Address.....

City.....*State*.....

Business or Profession.....

City Official (title) ☐ .....Dealer ☐

TRAFFIC CONTROL AND FACILITATION

Conducted by Publications Committee, Institute of Traffic Engineers, 175 Fifth Ave., New York

Paul L. Green, Chairman; Melvin J. Bankhead, James R. Guthrie, T. T. McCrosky, D. Grant Mickle, Robert A. Mitchell, Edward J. O'Meara, Miss I. K. Rolph, Peter J. Stupka, J. C. Vincent, John C. Wrighton

Broadcasting Traffic Trials

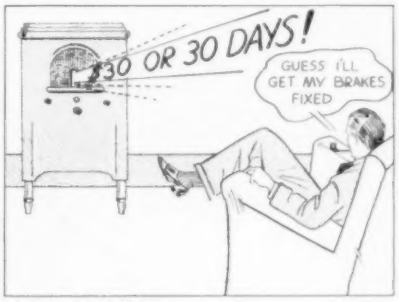
By **JUDGE WILLIAM H. SCHEAFFER**
Marion County Municipal Court, Indianapolis, Ind.

INDIANAPOLIS is one of the few cities in the country that have used the radio in the education of its motoring public. In February, 1933, certain officials of Station WKBF requested that they be allowed to feature a real court broadcast for one-half hour, as one of their station features. Daily schedules of the broadcasting station were firmly fixed at the time, so the arrangements finally made scheduled the broadcast for 8 o'clock on Thursday evenings, with all traffic cases set down for that night, and with the two regular judges alternating for a month at a time. After two months of night court, the time was changed to afternoon, with traffic cases predominating.

To say that the first broadcasts were nightmares is putting it mildly. In fact, the court room and corridors very much resembled the "first night" or premier of a new movie. Curious crowds arrived for a hilarious evening, and these added to the large crowd of offenders, made both the "judging" and the broadcasting most difficult. But the novelty soon wore off. With the seriousness of the court and the severity of the penalties, the audience realized it was not a show, and the spectators found that they could hear better at their radios than in the crowded court room.

Radio listeners received the broadcast with a great deal of enthusiasm, as was evidenced by the "fan mail" arriving daily. So popular did the broadcast become that the listeners demanded a full hour instead of the half-hour as originally planned. Much of the success of the venture was due to the helpful criticisms of the listeners. Many of their questions were answered in the course of the broadcasts, and there is no doubt in the minds of the officials that the educational side of the broadcast is most helpful. There are evidences of whole parties and families gathering at each broadcast, listening and discussing the decisions made.

We found that the erring motorists dreaded the laughs and taunts of their listening friends—they realized that their excuses sounded mighty "slim" over the ether waves, and this, added to the payment of money for fines, left a vivid impression on their minds. It was surprising how many offenders timidly asked, through attorneys and friends, that their cases might be tried "off the air," and many of them gave all kinds of excuses as to why they couldn't come to trial on



Thursday evening, "but any morning would do."

In the course of the hour broadcast, often not more than thirty cases are tried, out of the usual hundred. The cases coming under the scope of this one-day traffic court are just violations as seen by the traffic officers or motorcycle men, and do not include accident cases in which investigations and arrests are made by squad cars.

We have made the radio broadcast feature more than a drive of short duration on traffic offenders. The broadcast seeks to be a weekly reminder to the public of the necessity for safe and sane driving.

The Effect on the Judge

Incidentally, whether realized or not, the presiding judge, along with the defendants, is affected by the broadcast. The fact that an unseen audience is listening and "judging" the guilt of the offender with him, naturally makes the judge "on his toes" in rendering a fair decision, and in clearly offering words of explanation as to violations, laws, terms, of findings, etc. Time is taken during the period to explain types of violations, the meaning of the different aspects of a sentence, and in cases where extreme leniency has been shown, a word of explanation is often given recalling to the listener's mind the facts as brought out by the evidence.

I have noticed in the trial of traffic cases the large number of boys and young men who have appeared before me. The average speeder is between the ages of 17 and 22. By a speeder, I mean a driver who is exceeding the speed limit, with his car not under control, and driving his car in such a manner as to be endangering the life, limb and property of another. I doubt very much if our listeners are made up of many of the younger generation, yet undoubtedly parents who have heard the radio broadcasts and instruction, and know the seriousness of violations, can in discussions and mealtime conversations in many cases instruct their children.

Although we have had broadcasting in the city of Indianapolis since February, 1933, according to the statistics of the Police Department the number of accidents, property damage, injuries and deaths has shown an increase rather than a decrease over the same period of the previous year. It may be that there are more vehicles being operated this year than last. However, the motorcycle men insist that since the radio broadcast of traffic trials it is harder to catch traffic violators. I am informed by Captain Johnson of the Traffic Department that during the first quarter of 1934, which was the time that trials were broadcast at night, fatalities were fewer in the city of Indianapolis than in any other city of its class in the United States. Also, one of the city's largest milk companies reports to us that accidents by its drivers have decreased 50 per cent since the beginning of the broadcast.

—From a paper presented at the annual meeting of the National Safety Council at Cleveland, Ohio.

They Stop for Stop-Signs in Akron—50-50

"ARE these STOP signs being obeyed?" is a question asked in the report of a traffic survey made at Akron with funds and services of FERA. The answer was gathered by analyzing what 13,875 vehicles did at 69 intersections:

13 per cent of these cars came to a full stop.
52 per cent entered intersection at less than 3 miles per hour.
19 per cent entered at 3 to 15 miles.
4 per cent entered at more than 15 miles per mile.

An interesting contrast is presented by the 93 per cent observance of Stop-and-Go signals by Akron traffic. Only 7 per cent of 84,484 cars crossed against the amber and red—only 2.3 per cent, or 185 vehicles, went against the red.

With Western Electric's new 2-way Police Radio, headquarters and cruising cars work together more efficiently than ever before. Patrols now acknowledge orders — ask further instructions when necessary — report progress by radio.

To meet your local needs, headquarters' transmitters of 5, 50 and 500 watts carrier power are available. Operating in the ultra-high frequency band, this 2-way radio is almost entirely free from static and from interference with other stations. All equipment is compact, sturdy, thoroughly dependable and easily operated.

If you are already using 1-way radio equipment for giving alarms, you can easily adapt this to 2-way. Just install new Western Electric transmitters in patrol cars — and a receiver at headquarters to pick up their reports.

Ask for the new booklet "Combating Crime", which gives full details. Address Graybar Electric Company, Graybar Building, New York — or telephone Graybar's nearest branch office.

Western Electric

POLICE RADIO TELEPHONE EQUIPMENT

Distributed by GRAYBAR *Electric Company.* *In Canada: Northern Electric Co., Ltd.*

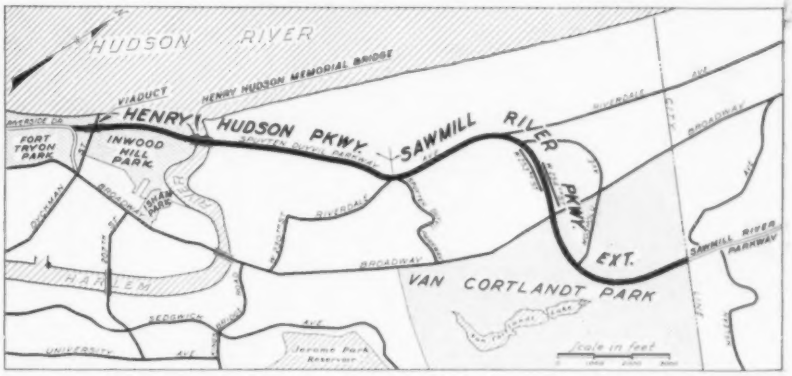
New Through-Traffic Parkway in New York City

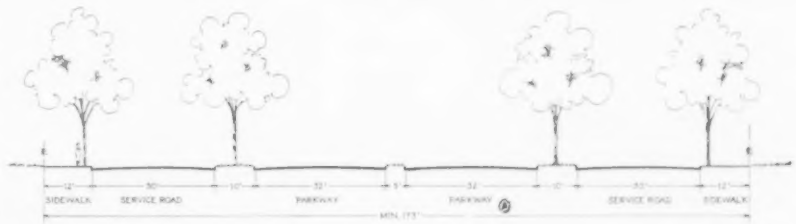
THE Henry Hudson Parkway, planned long ago, resurrected in 1934, and now under construction, will take through traffic from the northern termination of Riverside Drive (New York's most westerly street, overlooking the Hudson River) to the Saw Mill River Parkway in Westchester. A high-level bridge will carry the Parkway over the Harlem River Ship Canal from Manhattan to the Bronx.

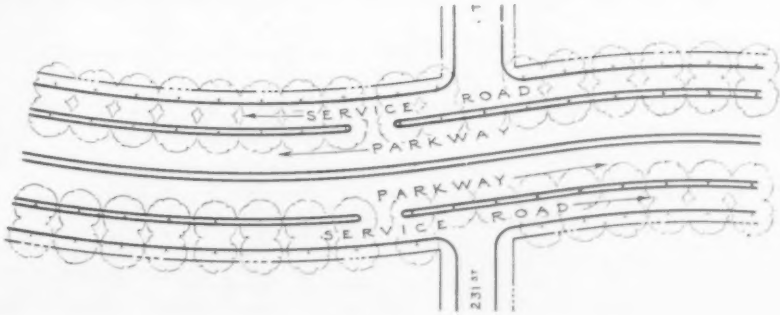
In addition to the 840-foot steel arch over the Harlem River Ship Canal, there are thirteen stone-faced concrete or steel bridges to carry cross traffic over or under the Parkway. There will be no crossings of this Parkway at grade. The Parkway proper consists of a three-lane concrete pavement in each direction, separated by a planting strip 5 to 10 feet wide. Right-of-way varies from 143 to 200 feet, and between Riverdale Avenue and Broadway reaches 400 feet.

The project is under the supervision of the Henry Hudson Parkway Authority headed by Robert Moses, Commissioner of Parks of New York. The work is being financed jointly by Federal Highway Funds allotted to the state of New York, and by the sale of bonds by the Henry Hudson Parkway Authority. All construction from Spuyten Duyvil Parkway to the city line will be performed by the State Department of Public Works from plans approved by the Authority. The Authority will perform all construction between Riverside Drive and Riverdale Avenue, with the funds secured from the bond issue. The bond issue is of 20-year 4 per cent bonds. The plan is to pay interest and principal from revenues collected by a 10 cent vehicle toll at the bridge over the Harlem River.

As estimated gross revenue for the first year is placed at $356,000, a daily traffic volume of 9,800 vehicles is foreseen. There are already thirteen bridges over the Harlem River, and traffic on the bridge nearest to the site of the new one averages 35,000 per day. Interest charges will amount to $124,000, and operating expenses to $70,000. Deducting these leaves $161,000 to apply to principal, and in 19 years would pay it off.







ILLUSTRATIONS FROM TOP DOWN—Over Harlem River Ship Canal—Location Map—Typical Section—Over Broadway—Typical Layout of Parkway and Service Roads at an Intersection Where There Is No Bridge

Elm Street, Winnetka, Illinois, Tarvia since 1917. As it looked then, and as it is today.

No road-building, road-maintaining material has a better right than Tarvia to associate itself with the "Good Roads at Low Cost" idea. Hundreds of roads, which have been giving completely satisfactory service since they were Tarvia-built 15, 20 or more years ago, have been helping thrifty communities put the low-cost principle into practice. Ask the Tarvia field man about them.

Barrett Tarvia
GOOD ROADS AT LOW COST

THE BARRETT COMPANY New York Chicago Philadelphia Birmingham Boston St. Louis Cleveland Minneapolis Lebanon Milwaukee Detroit Baltimore Columbus Youngstown Toledo Buffalo Providence Syracuse Hartford Cincinnati Bethlehem Rochester Portland, Me. In Canada: THE BARRETT COMPANY, LTD. Montreal Toronto Winnipeg Vancouver

Do you mention THE AMERICAN CITY? Please do.

Water Rates and Service Charges, Installation Charges, Hydrant Rentals and Sprinkler Costs—XV

Abstracts of Water Departments and Company Reports

Bloomfield, N. J.

Population	38,077
" served	38,077
Number of services	7,872
" " meters	7,872
" " hydrants	756
Miles of water main	81.3

The minimum rate for water supplied by meter during one quarter-year is $1.50. Where the consumption of water during the three months' period is less than 6,000 cu. ft., the rate is $2.00 per 1,000 cu. ft. Where the consumption of water during the three months' period is more than 6,000 ft. and less than 59,000, the rate is $1.80 per 1,000 cu. ft. Where the consumption of water is more than 59,000 cu. ft. during the three months' period and less than 120,000 cu. ft., the rate is $1.60 per 1,000 cu. ft. Where the consumption during the three months' period is more than 120,000 cu. ft., the rate is $1.50 per 1,000 cu. ft.

Applications for a connection to the water mains must be made by the owner of the premises or by his duly authorized agent on application to the Town Engineer. The application must be accompanied by the permit fee, which is returned if the application is not granted.

Permit Fees

¾" tap	$50.00
1" "	65.00
2" "	95.00
Above 2" "	special

Size of Service and Supply Line	Service Pipes Prices per Lineal Foot
¾" and 1"	$ .80
1¼"	.95
1½"	1.10
2"	1.25
3" and above	special

Stop and waste cocks and fittings extra, according to size. Where connections are applied for in streets having an improved pavement, an additional charge for the street opening and for replacing the pavement is made, as follows:

Grouted granite on concrete base, $15.00 a sq. yd.
Sheet asphalt, Topeka, or asphalt block, on concrete base, $7.50 a sq. yd.
Concrete, $5.00 a sq. yd.
Telford bound by asphalt, $3.00 a sq. yd.

An additional charge of $15 for each connection and 30c a foot additional for all service lines is made for all water connections made after the 15th day of November and before the 15th day of March of each year.

The following charges are made for water meters with special charges on sizes larger than included in the table:

⅝"	$16 60
¾"	24 00
1"	35 50
1½"	71 50
2"	107 00

There is no charge for public fire hydrants used by the City Fire Department. The charge for connecting any fire sprinkler system with the town water supply is as follows:

2" tap	$25 00
4" "	50 00
6" "	100 00

These charges are for the privilege of making the connections with the town water-supply system and do not include the cost of installation of the connection or meter nor of water used.

J. W. Obreiter,
Town Engineer.

Shamokin, Pa.

Population	40,000
" served	70,000
Number of services	8,000
" " meters	10,500
" " hydrants	270
Miles of water main	133.0

The water rates are composed of a consumption charge with a minimum monthly charge based on the size of the meter, as follows:

Consumption Charge

First	1,000 gals.	per mo.		$0 80	per 1,000 gal.
Next	9,000	"	"	.50	" " "
"	40,000	"	"	.20	" " "
Over	50,000	"	"	.10	" " "

Monthly Minimum Charge Per Meter Per Consumer

⅝"	$ .75
¾"	1.00
1"	2.00
1½"	4.00
2"	8.00
3"	17.50
4"	30.00
6"	70.00
8"	120.00
10"	200.00
12"	275.00

Water is furnished and service connections are made only upon written application on a form furnished by the company for that purpose. Connections from the street main to the curb line, including the curb stop cock, and box, are made by the company at its cost, and are under its sole control. The service connection is made only after the applicant has completed his line out to the curb line.

Public fire hydrants for Shamokin Borough, Coal and Ralph Townships are billed at $50 each per year. Private fire hydrants are billed at $20 each per year.

The stand-by charge for automatic sprinkling systems and other emergency uses are based on the size of the connection as follows:

2"	$ 50 00 per year
3"	75 00 " "
4"	100 00 " "
6"	250 00 " "
8"	500 00 " "
10"	950 00 " "
12"	1,350 00 " "

D. W. McWilliams,
Vice-President, The Roaring Creek Water Co.

Staunton, Va.

Population	11,500
" served	11,500
Number of services	3,000
" " meters	3,000
" " hydrants	225
Miles of water main	38.0

The water rates are:

First	300 cu. ft.		$1 00
Next	1,300 " "		45c
"	7,300 " "		30c
"	124,400 " "		15c
Over	133,300 " "		4½c
Minimum charge			$1 00

Outside the city limits the rates are increased 50%. There are about 200 consumers outside the city limits.

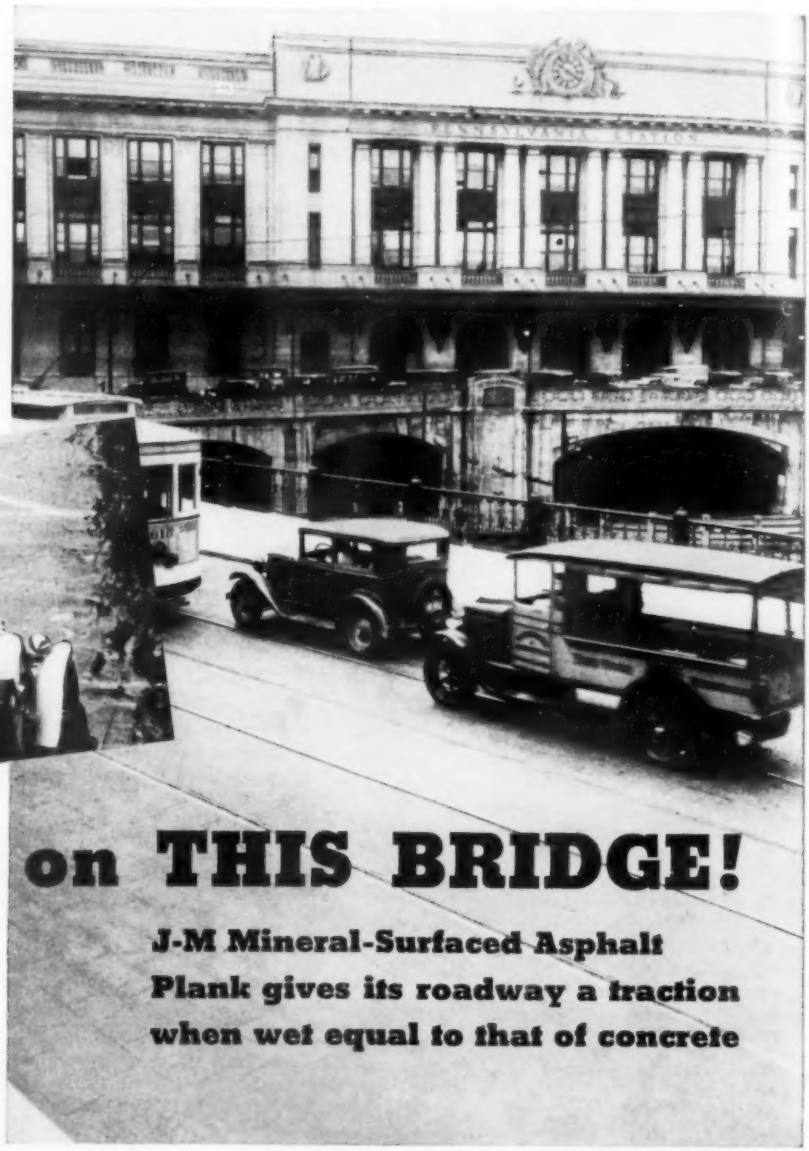
Applications for service must be made by the owner or tenant, addressed to the City Collector on forms prepared by the City Manager. The city then lays, at its expense, the service pipe leading from the water main to the curb, and installs a water meter. In installing service pipe for private residences, a ¾" service is used, unless the owner of the property agrees in writing to pay the difference between the entire cost of connection, including the meter and the cost of a ¾" service pipe and a standard ⅝" meter.

If a bill remains unpaid for 10 days after delivery, the collector immediately prepares to make collection in the same manner that other claims and obligations of the city are or may be collected. If a water bill remains unpaid for 20 days after its delivery, the Superintendent of Water is notified and the water is cut off and is not turned on again until the water bill is paid, plus a reconnection charge of 50c.

There is no fire hydrant charge and no sprinkler charge.

E. H. Dabney,
Superintendent, Water Department.

Plenty of Skids Today



—but not on THIS BRIDGE!

J-M Mineral-Surfaced Asphalt Plank gives its roadway a traction when wet equal to that of concrete

Johns-Manville
MINERAL SURFACED
ASPHALT BRIDGE PLANK

WE call it Mineral-Surfaced. Actually, the coarse trap-rock is embedded well *below* the surface. Forced in under great hydraulic pressure, it is *permanently* interlocked with the fibrous asphaltic body of the plank.

J-M Mineral-Surfaced Plank was specially designed to solve this important safety problem—the minimizing of skidding in rainy weather. Its traction when wet is equal to that of concrete.

It solves as well every other important bridge surfacing problem . . .

Weight? In the one-inch thickness, it weighs only 9 lb. per sq. ft. **Heavy traffic flow?** It is strong, durable, practically wear-proof. Will not warp, crack, splinter or decay. Resilient, it is unharmed by vibration or deflection. **Severe weather conditions?** Special asphalt and fibre content prevents brittleness in cold weather; it will not disintegrate under frost action. **Unskilled labor?** Local crews install it easily, quickly and with entire satisfaction. **Maintenance of traffic flow?** It is ready for duty the moment it is laid. Frequently, traffic is continued during application.

. . .

For a set of engineering data sheets describing in detail both the Smooth and Mineral-Surfaced types of J-M Asphalt Bridge Plank, mail the coupon. Johns-Manville, 22 East 40th Street, N. Y. C.

JOHNS-MANVILLE
22 East 40th Street, New York City

Send me a set of Engineering Data Sheets on J-M Asphalt Bridge Plank.

Name_____ Title_____

Organization_____

Address_____

City_____ State_____

AC-7-35

Newburgh, N. Y.

Population	31,940
" served (families)	8,476
Number of services	6,309
" " meters	806
" " hydrants	655
Miles of water main	63.784

The schedule of rates for metered water service, except in the case of water used for municipal purposes, consists of a meter charge which includes the furnishing of 15,000 gals. of water semi-annually, and a quantity charge. The meter charge is based upon the size of the meter as follows:

	1933		1934
⅝"	$ 4.50	semi-annually	$ 4.50
¾"	6.00	"	6.00
1"	9.00	"	8.50
1½"	15.00	"	12.50
2"	25.00	"	17.50
3"	50.00	"	25.00
4"	75.00	"	37.50
6"	150.00	"	75.00

These charges include the use of 15,000 gals. of water each six months through each meter regardless of size, but if less than that amount of water is used during the six-months period, there is no reduction in the meter charge.

The meter charge is payable semi-annually, as is also the charge for water which passes through the meter, whether used or wasted, in excess of 15,000 gals. The rates are:

Next	35,000	gals.	used	within	the	half-year	20c	per 1,000 gals.
"	450,000	"	"	"	"	"	16c	" " "
"	2,000,000	"	"	"	"	"	12c	" " "
Over	2,500,000	"	"	"	"	"	10c	" " "

All premises outside the city of Newburgh which are supplied with water by the city of Newburgh must be metered, and the owner, or owners, pay the meter rates specified above plus 15%.

C. B. GILCRIST,
Superintendent, Water Department.

Sanford, Maine

Population	13,000
" served	13,000
Number of services	2,694
" " meters	2,306
" " hydrants	175
Miles of water main	37

The rates for water in the Sanford Water District start with a service charge for the water service and the meter, followed by an additional charge for all water used as follows:

SERVICE CHARGES

	Per Mo.	Per Quarter	Per Year
⅝" meter and (or) service	$ .58	$ 1.75	$ 7.00
¾" " " " "	1.00	3.00	12.00
1" " " " "	1.50	4.50	18.00
1½" " " " "	2.50	7.50	30.00
2" " " " "	3.33	10.00	40.00
2½" " " " "	4.17	12.50	50.00
3" " " " "	5.00	15.00	60.00
4" " " " "	6.67	20.00	80.00
6" " " " "	8.33	25.00	100.00

First 1,000 cu. ft. of water per mo. or any part thereof, the domestic rate of ..... 25c per 100 cu. ft.
For water in excess of 1,000 cu. ft. and under 10,000 cu. ft. per mo., the intermediate rate of ..... 15c " " " "
For water in excess of 10,000 cu. ft. per mo., the manufacturing rate of ..... 10c " " " "

The domestic rates are applicable to all buildings used as dwellings, shops, offices, etc., where the use of water does not exceed 12,000 cu. ft. per year. For each additional consumer through the same meter or service, there is an additional charge of $7.00 per year. These service charges apply to all consumers with the exception of those supplied by a single faucet or outlet only, in which case the service charge is $6.00 per year.

The intermediate rates, which are billed monthly or quarterly, are applicable to mercantile establishments, offices, apartments, etc., using over 12,000 cu. ft. per year. The service charge covers the portion of the premises used by the owner, including either one store, office or apartment, and for each store, office or apartment furnished with water there is an added service charge of $6.00 per year.

Manufacturing rates, which are billed monthly, are applicable to consumers using over 24,000 cu. ft. per year, such as mills, railroads, theaters, hospitals, municipal buildings, schools, hotels, restaurants, florists, bottling works, garages, laundries, churches, etc.

Applications for service must be made at the office of the District on forms specially provided, and must be signed by the owner of the premises or his duly authorized agent. Service lines and appurtenances are laid by the District from its mains to the curb line of the street at the expense of the District. The expense of the piping and other necessary work from the curb line to the building is paid by the applicant, who must arrange his piping in such a way that a meter can be installed near the point of the entrance of the service. Meters are installed and paid for by the District.

Public fire hydrants are billed at $60 each per year.

The charges for services used to supply sprinkler systems and hose outlets in buildings or on private property where the service is used for fire protection only, are charged at one-half the manufacturing service rate. Hose outlets are billed at $10 each per year. The consumer is charged the exact cost of labor and materials used in the work of installing a service for private fire protection, with an additional charge of 10% to cover the cost of supervision and overhead.

HORACE L. CLARK,
Superintendent and General Manager,
Sanford Water District.

West Palm Beach, Fla.

Population	28,000*
" served	27,500*
Number of services	6,450
" " meters	6,450
" " hydrants	771
Miles of water main	176

*Palm Beach and West Palm Beach.

The rate for water in West Palm Beach is uniformly 21c per 100 cu. ft. except for water used for fire protection through authorized private fire lines.

The annual service charge, including private fire lines, and payable in advance is:

⅝" meter	$ 9.00 each
¾" "	15.00 "
1" "	20.00 "
1½" "	40.00 "
2" "	65.00 "
3" "	125.00 "
4" "	190.00 "
6" "	375.00 "
8" "	625.00 "

Bills are considered in default if not paid within 15 days after presentation, at which time water may be turned off and the meter removed by the company. If it is necessary to send a collector, a fee of $1.00 is charged or the water is turned off; and if the meter is removed, a fee of $2.00 is charged before the meter is replaced.

The charge for public fire hydrants is $10 each per year, plus $5.50 per mile of main per year (applies to mains 6" and larger).

R. W. REYNOLDS,
West Palm Beach Water Co.

Cortland, N. Y.

Population	16,000
" served	16,000
Number of services	3,700
" " meters	3,700
" " hydrants	331
Miles of water main	40.4

Water meters are read quarterly in Cortland, and the minimum rate per year is $5.00. Consumers whose bills total less than this amount in twelve months are billed a make-up charge on January 1 each year. The meter rates are:

Less than	500	cu.	ft.	per	day	15c	per	100 cu. ft.
500 to	1,000	"	"	"	"	12c	"	" " "
1,000 "	1,500	"	"	"	"	10c	"	" " "
Over	1,500	"	"	"	"	7½c	"	" " "

Special rates for consumers who use an excessive amount.

Bills are net with no discount. All bills are past due after the 15th of the first month in each quarter. Water is then shut off if the past-due bills are not paid, resulting in collections being nearly 100% at the end of the quarter.

The charge for private and public hydrant rental is $10 per hydrant per year. No charge is made for water for fire sprinkler systems.

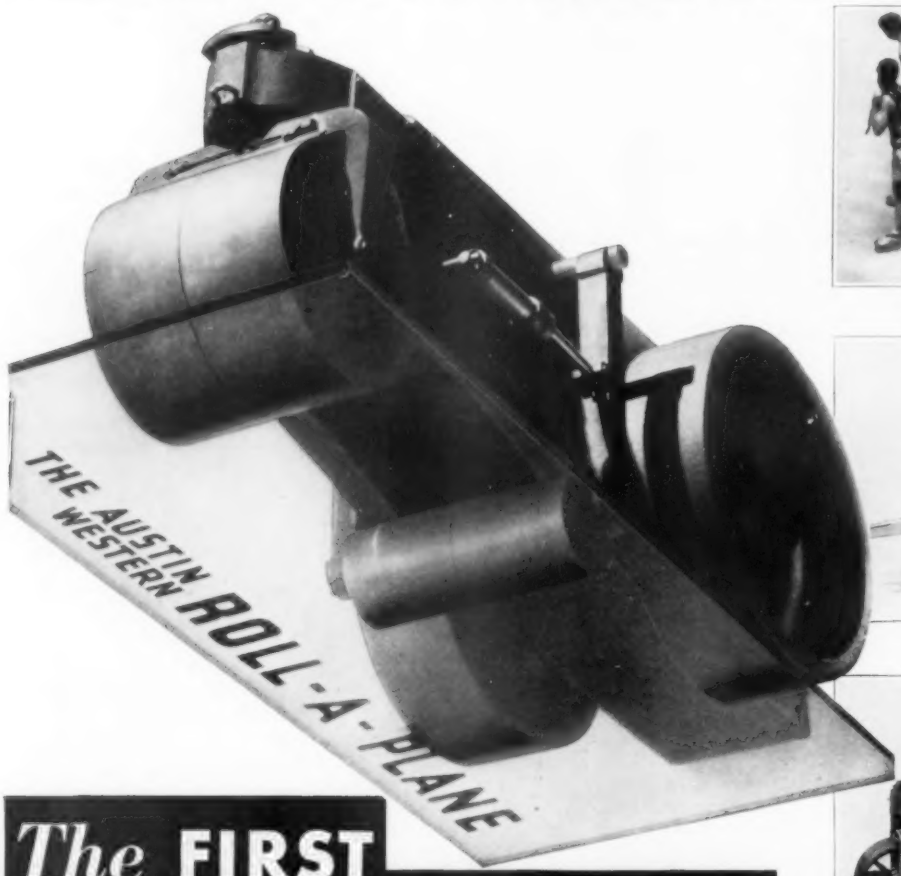
F. L. TITCHENER,
Superintendent, Water Department.

Ithaca, N. Y.

Population	23,000
" served	30,000
Number of services	4,800
" " meters	5,321
" " hydrants (360 within city limits, 20 outside)	380
Miles of water main	68

The meter rates for quarterly consumption vary from 35c for the 100 cu. ft. in irregular units to 10c per 100 cu. ft. at 20,000 cu. ft. consumption. There are points in the rates where the charge is only 5c per 100 cu. ft. below 20,000 cu. ft. used. For a quarterly consumption above 20,000 cu. ft, the charge is 70c per 1,000 cu. ft.

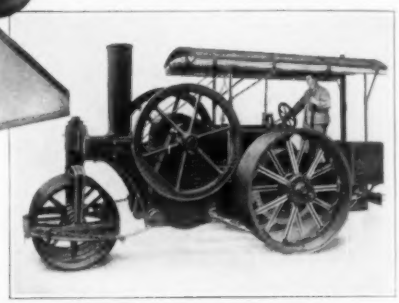
NEW ROAD ROLLING PRINCIPLE



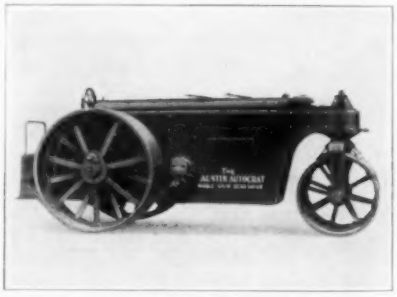
The FIRST in 1,935 YEARS

THE YEAR 1 B.C.

19th CENTURY



EARLY 20th CENTURY



1930—THE AUSTIN AUTOCRAT

Through nineteen centuries the principle used for rolling roads remained the same—*compaction by a rolling weight*. Today the Austin-Western Roll-A-Plane brings the industry a new principle—*compaction by a rolling plane*—and accomplishes a better result for less money—in 1/3 less rolling time.

All rollers have been directed to the same purpose: (1) to reduce voids in the pavement, thereby increasing its density and stability, and (2) to produce surface smoothness for riding comfort and reduced road wear. The Roll-A-Plane is essentially a new machine for accomplishing this purpose more completely and effectively.

A small diameter roller located between the larger rolls eliminates the tendency of the conventional roller to follow the contour of the highway. As it meets a high spot a constantly increasing pressure up to 90% of the roller weight is exerted—the kneading, compacting "spot pressure" performs the leveling operation more uniformly than ever before. The result is a smoothness which materially reduces the cost of road maintenance. Write for latest bulletins.

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On monthly water bills the first 6,700 cu. ft. is charged at the gross rate of $10.75. Water used above this figure is charged at a gross rate of 70c per 1,000 cu. ft. Consumption below 6,700 cu. ft. is at the regular rate.

A discount of 10% is allowed on all bills for consumption which are paid on or before the 15th of the month in which the charge is made. A discount is not allowed on any current bill where any previous account remains unpaid.

Applications for the installation of services must be made at the City Chamberlain's office and a deposit made to cover the cost of tapping the main. This charge is $2.50 for a ½" service, $2.75 for a ¾" service, and $3.00 for a 1" service. Outside the city the rates are doubled. This cost is for tapping only. The ditch must be dug and the service installed by a licensed man, bonded by the city to do this work, at the expense of the property owner. All work is inspected and approved by the Water Department.

Each building or premises must be provided with a separate and independent service pipe from the main. However, where premises have more than one building which must necessarily have a branch service in order to be supplied with water, these branches must have separate curb boxes and be independent of each other.

All lateral or service pipes must be of copper or other pipe approved by the Board and laid at least 4½" ft. deep. Whenever a leak occurs in a service pipe, the property owner is notified to repair it, and if the work is not done within a reasonable time, the city repairs the service and charges the expense against the property owner.

The city owns and installs all water meters. All meters over 1" in size must have a by-pass with a locked valve at all times.

The owner of property is held responsible and liable for all charges for service and water consumption.

There are no hydrant rental charges inside the city limits. Outside the city a charge of $40 per year per hydrant is made. There is no charge at present for sprinkler systems or fire lines.

GEORGE D. CARPENTER.
Superintendent, Water Department.

Marshalltown, Iowa

Population	18,000
" served	17,999
Number of services	4,200
" " meters	4,300
" " hydrants	397
Miles of water main	55.0

The schedule of water rates in Marshalltown is as follows:

First	500 cu. ft. per quarter	$ .30 per	100 cu. ft.
Next	2,500 " " " "	.25 "	" " "
"	3,000 " " " "	.20 "	" " "
"	3,000 " " " "	.15 "	" " "
"	21,000 " " " "	.13 "	" " "
"	70,000 " " " "	.10 "	" " "
"	100,000 " " " "	.08 "	" " "
"	200,000 " " " "	.07 "	" " "
"	400,000 " " " "	.06 "	" " "
All over		.05 "	" " "

Each service must pay a minimum charge of $1.50 per quarter, which entitles the consumer to 500 cu. ft. of water during that quarter. This minimum charge is made even if the property is vacant, unless the water has been turned off at the curb stop by a regular employee of the Water Department. A charge of 50c is made for turning off or on water services.

All bills not paid on or before the date due are subject to a rate 10% in excess of the schedule. Failure to receive a water bill when it has been sent out by the Water Department does not exempt consumers from paying a 10% increase if the bill is not paid when due.

The Water Department charges $3 for all new services. This includes the permit and inspection charges. The only regulation enforced in regard to services is that the service pipe must be copper between the main and the curb stop. The minimum size is ¾".

There is no hydrant or sprinkler service charge in Marshalltown.

H. V. PEDERSEN,
General Manager, Marshalltown Water Works.

Mishawaka, Ind.

Population	28,700
" served	26,000
Number of services	7,500
" " meters	6,040
" " hydrants	414
Miles of water main	69.50

The meter rates charged by the City Water and Electric Plant are as follows:

First	8,000 cu. ft. per quarter,	15c per	100 cu. ft.
Next	12,000 " " " "	9c "	" " "
All over	20,000 " " " "	7c "	" " "

The minimum charges based on the size of meters and payable quarterly are:

⅝" meter	$ 2.25
1" "	4.50
1½" "	9.00
2" "	12.00
3" "	22.50
4" "	45.00
6" "	60.00

The following table shows the cost of service installations in streets where a pavement has been laid, and in unimproved streets:

⅝" lead service to curb	$28.00	paved,	$20.00 unimproved
1" " " " "	30.00	"	40.00 "

Where the utility installs a service larger than 1", the consumer is billed the actual cost of materials and labor plus 5%. Lead connections and brass pipe are used for sizes up to and including 2", and standard cast iron pipe and fittings are used for all sizes larger than 2".

Public fire hydrants are installed and maintained by the City Water and Electric Plant at a cost of $18 per year, paid by the city to the water works.

Fire protection service is furnished to manufacturing plants at a charge based on the size of the service as follows:

1"	$ 3.00 per quarter
1½"	4.50 " "
2"	7.50 " "
3"	12.00 " "
4"	16.50 " "
6"	22.50 " "
8"	30.00 " "

A. R. KLEIN,
Superintendent, City Water and Electric Plant.

Lawrence, Kans.

Population	13,800
" served (Includes University students)	17,000
Number of services	4,050
" " meters	4,050
" " hydrants	280
Miles of water main	50.9

The schedule of water rates in Lawrence is as follows:

First	2,000 gals. or less	$1.00 per	1,000 gals.
Next	1,000 " " "	.45 "	" "
"	7,500 " " "	.42 "	" "
"	7,500 " " "	.40 "	" "
"	7,500 " " "	.38 "	" "
"	7,500 " " "	.36 "	" "
"	7,500 " " "	.34 "	" "
"	7,500 " " "	.32 "	" "
"	7,500 " " "	.30 "	" "
"	7,500 " " "	.28 "	" "
"	7,500 " " "	.26 "	" "
"	7,500 " " "	.24 "	" "
"	7,500 " " "	.22 "	" "
"	7,500 " " "	.20 "	" "
"	7,500 " " "	.18 "	" "
"	7,500 " " "	.16 "	" "
"	7,500 " " "	.14 "	" "
All over	115,500 gals.	.12 "	" "

An applicant for water service is required to make an advance deposit equal to the charge for service installation as follows:

¾"	$22.50
1"	30.00
1½"	38.25
2"	49.00

The hydrant rental for public fire hydrants is $38.50 per year per hydrant. There is no charge for service lines for sprinklers for fire protection.

C. T. HOUGH,
Superintendent of Water.

Redlands, Calif.

Population	16,000
" served	16,000
Number of services	4,434
" " meters	4,405
" " hydrants	585
Miles of water main	90.3

The domestic water rates for metered water service in the city of Redlands are:

First	20,000 cu. ft. per mo.	8c per	100 cu. ft.
All over	20,000 " " " "	5c "	" " "

The minimum charge for which a definite amount of water may be used is based upon the size of the meter, as follows:

⅝" meter	2,000 cu. ft.	$1.60 per mo.
1" "	2,500 " "	2.00 " "
1½" "	3,100 " "	2.50 " "
2" "	5,000 " "	4.00 " "
3" "	12,500 " "	10.00 " "
4" "	15,600 " "	12.50 " "

Water for commercial irrigation is charged at the rate of 3c per 100 cu. ft.

The service connection charge, which includes the cost of the meter, is as follows:

¾"	$10.00
1"	15.00
1½"	20.00
2"	25.00
4"	50.00

GEORGE S. HINCKLEY,
City Engineer.

KOPPERS PRODUCTS PROTECT

ELIMINATING SKIDDING BY APPLICATION OF TARMAC (AND CHIPS)

Too few people realize the importance of Tarmac surfaces in the development of safe roads. It is now possible to prove the skid-resistant character of tar surfaces and even to measure the difference between various types of surfaces. With Tarmac, new road surfaces can be built skid-resistant and old slippery surfaces can be made skid-resistant. This photo shows Tarmac being applied over an old slippery surface in New York State.

WHY DOES WOOD DECAY?

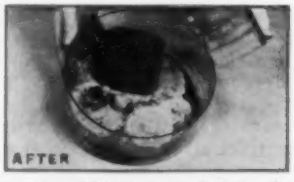
Wood decay is caused by a low form of plant life known as fungi. Fungi have fine, thread-like filaments which penetrate the wood, destroying portions of it and reducing it to a powdered or crumbled mass. The photographs on this page show one of the Koppers laboratory experiments showing how effectively creosote prevents the destructive action of fungi. Creosote treatments also prevent destruction by termites.

Typical damage done by fungus.

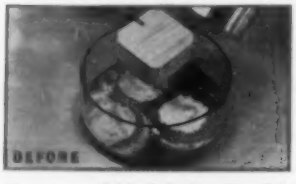
Agar being poured into petri dish as a medium for test.

Agar being inoculated with lentinus lepideus, a fungus.

Creosoted block being placed in test dish after fungus culture had spread over the agar medium.

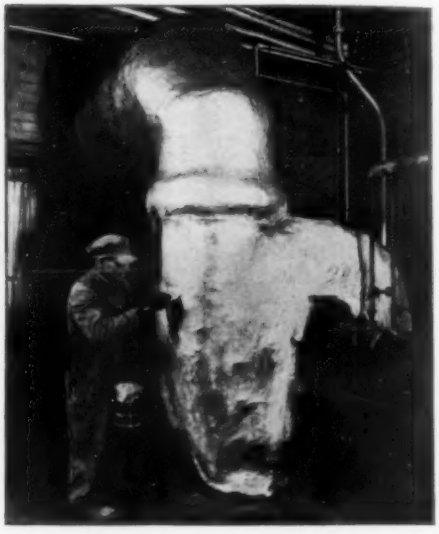


Creosoted block untouched by the fungus; fungus killed by the creosote. (Photo taken after three months.)



Un-creosoted block being placed in test dish after fungus had spread over the medium.

Un-creosoted block attacked and now completely covered by the fungus. (Photo taken after three months.)



INCREASING THE HEAT INSULATING VALUE OF PIPE COVERINGS

Koppers Lumino being applied to pipe insulation on the vapor system at a coke plant. Lumino increases the heat insulating value of pipe coverings, as well as beautifying the building interior and increasing the light reflection.

KOPPERS

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

ZONING and PLANNING NOTES

From Data collected by the Zoning Committee of New York (233 Broadway)

Streets

COLORADO.—*Wood v. People ex rel. Stonebraker*, 43 Pac. 2d, 1001 (Supreme Court, April 6, 1935.)—This is an action by the People to compel the city authorities to remove certain gasoline pumps located, by owners of abutting land, at the curb line on the sidewalk of a public street. The pumps were erected by permit from the city, passed under a city ordinance. The People claim that the State Legislature has given the city no authority to pass such an ordinance.

The Court rules that the city held the fee simple title to the streets "for the use of the public." The Legislature had given the city the right to establish the streets, to regulate them, to keep them in repair, and to free them from obstructions; all of which establishes the city's right and duty to act in behalf of the public and not for private interests.

EDITOR'S NOTE.—The nature and limits of the rights to use the public streets is a subject of much interest and complexity. The streets are dedicated to movement—of people, vehicles, public utilities, such as water, sewage, telephone and telegraph messages. In aid of such movement, structures in the streets are permissible, such as car tracks, poles, wires, sewers and conduits. In the street not only the public, but the owner of abutting land, has rights. The abutter is entitled to light, air, view and access for his land. Structures which unduly interfere with these rights entitle the abutting owner, if not to their renewal, at least to compensation. For instance, such an owner can, as a rule, obtain no damage for street-car tracks, but must usually be paid for an elevated railroad structure.

In the present case, the question is whether the pumps were to be regarded as an aid or an obstruction to traffic. The Court regarded them as a private business, which could and should be conducted on private land and not on sidewalks which are parts of public streets.

In this connection the Maryland case of *Huebschmann v. Grand Co.*, with the note thereto, to be found in this department in July, 1934, may be of interest.

Eminent Domain—Housing

NEW YORK.—*Matter of City of New York*, Supreme Court, Kings County, reported in *New York Law Journal*, June 6, 1935.—This is a condemnation proceeding, brought by the city of New York to acquire title to property in private ownership, which the New York City Municipal Housing Authority has certified to be necessary for the clearance, replanning and reconstruction of a given area. The Laws of New York for 1934, Chapter 4, is a recitation of a legislative finding that there exist inadequate housing conditions and an inadequate supply of safe and sanitary dwelling accommodations for persons of low income, constituting a menace to health, safety and welfare of the citizens of the state, and that these conditions cannot be remedied by private enterprise.

Some of the owners object to the proceeding on the ground that condemnation is unconstitutional in that the taking for housing purposes is not a public purpose. Following the recent case of *Matter of New York Housing Authority v. Muller*, the Court decides that the proceeding is constitutional.

EDITOR'S NOTE.—A review of the Muller case will be found in an article in the May, 1935, issue of this magazine, by Ira S. Robbins, entitled "Eminent Domain for Clearing Slums and Building Low-Cost Housing Upheld."

Private Covenants

OKLAHOMA.—*Commercial Realty Co. v. Pope*, 43 Pac. 2d, 62.—The fact that traffic has increased on streets surrounding a restricted area may be considered as evidence showing a change of conditions, but is not of itself sufficient to warrant the releasing of affected property from a restrictive residential covenant.

EDITOR'S NOTE.—See in this connection the Connecticut case of *Bickell v. Morato*, in our Notes for November, 1933.

Zoning in Los Angeles

At the session of the California Planners Institute, February 23, 1935, Huber Earl Smutz, zoning engineer, of Los Angeles, delivered an interesting address on the history and present status of zoning in that city. The address is entitled "Los Angeles—New Comprehensive Yard Ordinance."

New Jersey Makes Notable Advance in County Planning

New Jersey has just enacted a county planning law* of outstanding merit. Under this law the planning commission is appointed by the County Board of Chosen Freeholders. The first duty of the commission is to prepare a master plan showing its recommendations for the development of the county. Thus the commission is obliged to make a careful study of the territory in its charge before exercising its more detailed powers.

The master plan does not itself have any binding force. Its purpose is to secure and formulate the data for planning needed by the commission, the Freeholders and the community. The binding force is exercised by an official map, made up of existing developments and such changes as seem to be immediately desirable and feasible in the light of the master plan. The master plan is adopted, and may be amended from time to time as seems wise, by the Freeholders. Before taking any such action, the Freeholders are required to obtain the advice of the planning commission, which the Freeholders can overrule only by unanimous vote. Thus, while the legislative body of the county has full ultimate power, it cannot disregard the expert advice of the commission lightly.

A plan, to be of real service, must look forward many years in advance of actual construction of the features planned, and of the acquisition of the land for the purpose. The plan leaves the ownership of the land planned in the private owners. For most purposes this land is, and should be, used by its owners for their profit, to the advantage of the community, until taken and paid for by the public authority, but the owners should not be allowed meanwhile to block the plan by expensive improvements which the community, in making the improvements, will be compelled to demolish and pay for. Experience seems to show that the greatest danger is the erection of buildings in the bed of mapped streets when as a rule they could equally well, or better, be located in conformity with the plan. The new law therefore forbids the erection of buildings so located, but provides, as in zoning, a method of relief in cases of hardship, and thus renders this law just and constitutional.

Provision is also made for the guidance of smaller municipalities within the county in their platting control, and for the association of various local authorities in regional planning.

The reader may be interested in seeing a discussion of county planning in the latest city planning study of the School of City Planning at Harvard University[1] along the lines of New Jersey's recent act[2] and along somewhat different lines[3]; in each case with drafts of proposed legislation. The New Jersey law follows rather closely the drafts of Messrs. Bassett and Williams.

* Public Laws, 1935, Ch. 251, approved June 8, 1935.

[1] Model Laws for Planning Cities, Counties and States, Harvard University Press, Cambridge, Mass., 1935, by Bassett, Williams, Bettman and Williams.

[2] Report of E. M. Bassett and F. B. Williams.

[3] Report of Alfred Bettman; report by Robert Whitten.

National Resources Committee Succeeds NRB

BY executive order of President Roosevelt on June 7, the National Resources Committee was created as successor to the National Resources Board. The Committee consists of the Secretaries of Interior, War, Agriculture, Commerce, and Labor, the Federal Emergency Relief Administrator, and Frederic A. Delano, Charles E. Merriam and Wesley C. Mitchell.

It will be the duty of the Committee: (a) to collect and prepare plans and data helpful to a planned development and use of land, water and other national resources; (b) to cooperate with the Federal and local governments and public and private planning and research agencies; and (c) to receive and record all proposed Federal projects involving the acquisition of land and land research projects, and in an advisory capacity to provide the agencies concerned with such information or data as may be pertinent to the projects.

Smoother OPERATION..

EXTRA YARDAGE AT LOWER COST

The vital advantage of low compression in a Diesel-burning tractor is demonstrated on this highway job. In competition with other makes, the Allis-Chalmers Model "L-O" handled a big 20,000-pound scraper to better advantage . . . "got there" quicker . . . filled the scraper bowl with more dirt . . . delivered about three loads more per hour on the same average haul.

Why? Because of **smoother operation.** Allis-Chalmers Oil Tractors employ a new, improved system of engine operation which eliminates the need for high compression pressures. Diesel fuel is injected into the combustion chamber with a Diesel pump and ignited with a spark. High compression is not necessary for ignition—compression pressures are only one-fourth to one-third those of the unimproved type.

Result—The Allis-Chalmers Oil Engine is not compelled to labor against high compression pressures. Operation is smoother. Less strain on working parts. Less vibration and wear. Fewer repairs. Claims can't compare with **facts** . . . A-C Oil Tractors do the work at Lowest Final Cost.

A-C OIL.. TRACTORS FOR LOWEST FINAL COST

TRACK-TYPE AND WHEEL-TYPE TRACTORS . . . POWER-CONTROLLED GRADERS . . . HAND-CONTROLLED GRADERS . . . SPEED PATROL GRADERS . . . ELEVATING GRADERS . . . POWER UNITS . . . TRACK WAGONS . . . WAGON TRACKS

ALLIS-CHALMERS

TRACTOR DIVISION—MILWAUKEE, U. S. A.

THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, Attorney at Law

Accidents

City held not liable for drowning of child in park pond where wading and swimming in it was prohibited by ordinance, although watchman consented (New York Supreme Court, Appellate Division: *Cunningham vs. City of Niagara Falls*, 272 N. Y. Supp. 720). But in *Rome v. London & Lancashire Indemnity Co.*, 156 So. 64, the Florida Supreme Court held city was liable for death in pool to which admission was charged.

City held not liable for injury to child on slide unauthorizedly erected on private property by highway and sewer foreman (Pennsylvania Supreme Court: *Vecchio v. City of Pittsburgh*, 173 Atl. 468).

Village held not liable for death of volunteer fireman killed while fighting fire in nearby town, no authorized call from such town having been made (New York Supreme Court, Appellate Division: *In re Young's Estate*, 272 N. Y. Supp. 167).

City held liable for drowning of child in hole dredged in river bed to prevent floods (Colorado Supreme Court: *City and County of Denver v. Stutzman*, 33 Pac. 2d, 1071).

Attorneys

City held not liable to unofficial attorney for services in suing to oust officers who refused to surrender offices to elected candidates, the services being rendered at the instance of the officers elect (Indiana Appellate Court: *Williams v. Michigan City*, 192 N. E. 103).

City Attorney held properly disbarred for conducting condemnation proceedings against property owned by himself (Oklahoma Supreme Court: *Ferguson v. City of Hooker*, 36 Pac. 2d, 18.)

Bond Issues

Refunding bonds held authorized and not to create new debt (North Carolina Supreme Court: *Brooks v. Avery County*, 175 S. E. 199).

Bonds for interstate bridge payable in part by tolls and through state and Federal aid held valid (Missouri Supreme Court: *State v. Smith*, 74 S. W. 2d, 367).

Civil Service

Borough council held empowered to abolish office of recorder in good faith and for economy (New Jersey Supreme Court: *Heetner v. Mayor and Council, Fort Lee*, 173 Atl. 339). Board of Health sustained in abolishing position of plumbing inspector for like reasons (New Jersey Supreme Court: *Santucci v. City of Paterson*, 173 Atl. 611).

Eighteen months' delay by discharged employee in suing held to preclude reinstatement (Louisiana Supreme Court: *State v. Sewerage and Water Board of New Orleans*, 155 So. 770).

Claims

Holder of claim allowed by city for services held entitled to mandamus to compel payment, including interest from date claim was presented (New Jersey Supreme Court: *Hudson County National Bank v. City of Bayonne*, 174 Atl. 241).

Condemnation Proceedings

Failure to pay condemnation award within statutory time held not to imply abandonment of condemnation proceedings(California District Court of Appeal: *City of Los Angeles v. Higgins*, 34 Pac. 2d, 754).

Contempt Proceedings

Mayor and Chief of Police held not guilty of contempt of injunction against disobeying orders of Superintendent of Safety, in seizing illegal slot machines (Louisiana Supreme Court: *Dawkins v. Bazer*, 155 So. 3).

Contracts

Contract provision for retention by village of percentage due street contractor to secure fulfillment of contract held not to require retention for benefit of contractor's surety until payment of materialmen (Ohio Court of Appeals, Cuyahoga County: *Village of Beachwood v. Ohio Casualty Insurance Co.*, 191 N. E. 797).

Contract of water district surrendering to private corporation, in which District Commissioners were stockholders, held invalid and incapable of ratification by City Council (Arkansas Supreme Court: *Ganntt v. Arkansas Power & Light Co.*, 74 S. W. 2d, 232).

Elections

County held entitled to withhold tax moneys from city to reimburse itself for election expense owing by city, though statutory claim had not been filed (Kansas Supreme Court: *City of Weir v. Board of County Commissioners*, 33 Pac. 2d, 1108).

Statute forbidding that more than half of election commissioners be of same political party upheld (Michigan Supreme Court: *O'Brien v. Reading*, 256 N. W. 432).

Finances

Constitutional debt limit held not to apply to money borrowed by municipality from its own Water Department (South Carolina Supreme Court: *Traver v. Town of Johnston*, 175 S. E. 821).

Judgments

Oklahoma judgment against city held not to become dormant on lapse of five years (Oklahoma Supreme Court: *City of Drumright v. McCormick*, 35 Pac. 2d, 951).

Liquor Regulations

City could impose license tax on liquor sales, for revenue, despite similar levy by state (Arizona Supreme Court: *Barrett v. State*, 36 Pac. 2d, 260).

Pensions

Fireman dismissed for embezzlement held not entitled to pension, despite previous honorable service (New Jersey Supreme Court: *Plunkett v. Board of Pension Commissioners, Hoboken*, 173 Atl. 923).

Police Power

Ordinance forbidding boxing and wrestling contests upheld as "municipal affair" exempted from operation of general state laws (California District Court of Appeal: *Porter v. City of Santa Barbara*, 35 Pac. 2d, 207).

Public Utilities

State statute fixing 5-cent fare for interstate street-car line held void, but franchise provision fixing such fare held valid, subject to abrogation by Congress, although subsequently becoming inadequate (United States Circuit Court of Appeals, Sixth Circuit: *City of Covington v. Cincinnati, Newport & Covington Railway Co.*, 71 Fed. 2d, 117).

Special Assessments

Five years' delay in apportioning cost held not to bar special assessments for street improvement (Pennsylvania Superior Court: *In re Evergreen Road, Pittsburgh*, 174 Atl. 804).

Abutting property held not liable for maintenance of boulevard extending from one city into an adjacent one (Michigan Supreme Court: *Welch v. City of Lincoln Park*, 256 N. W. 476).

Street Improvements

Held improper to assess against unplatted and unimproved five-acre tract cost of twelve sewer and water connections, but use of same before payment could be forbidden (Iowa Supreme Court: *Seymour v. City of Ames*, 255 N. W. 874).

Water Supply

Charter city given power to control its "municipal affairs" held entitled to secure water supply through ownership of stock in private company (California District Court of Appeal: *Smith v. City of Glendale*, 36 Pac. 2d, 1083).

Wharves

City held validly authorized by statute to issue bonds to improve public wharf, but not empowered to lease portion of wharf to Federal authority in consideration of Federal aid (Kansas Supreme Court: *State v. Kansas City*, 37 Pac. 2d, 18).

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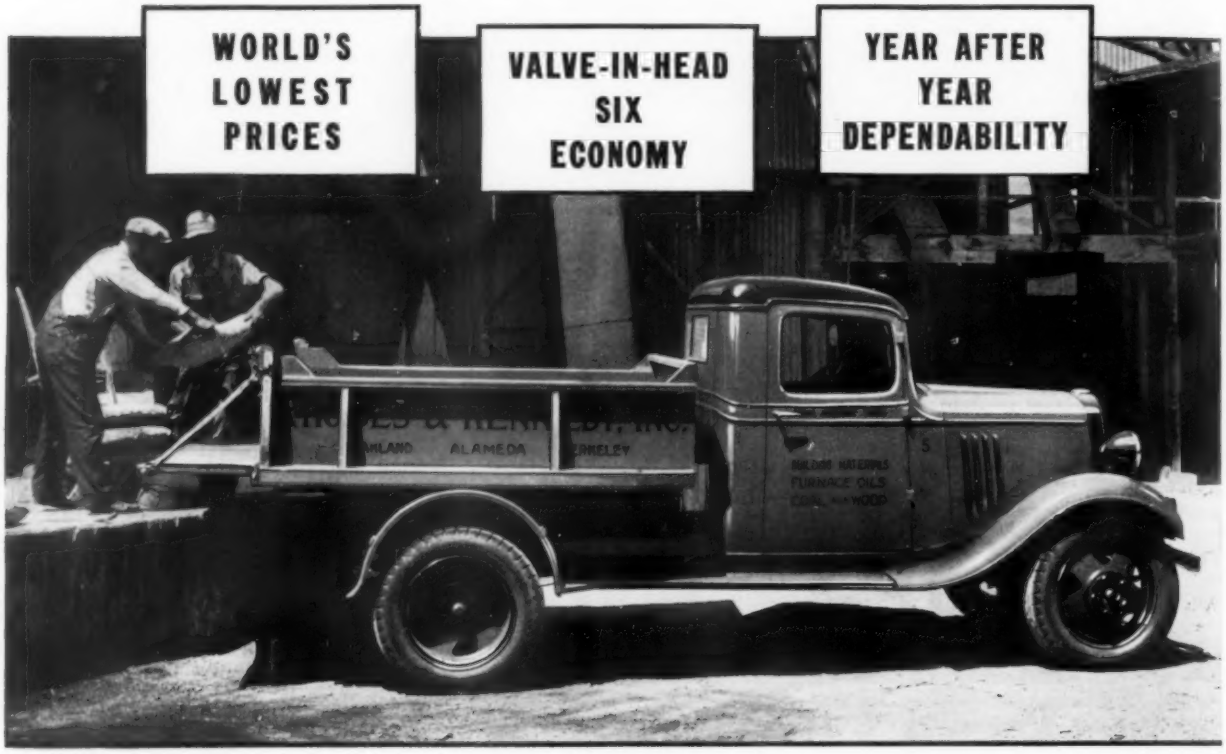

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MUNICIPAL AND CIVIC PUBLICATIONS

Prices quoted do not include postage, unless so stated

Public Health

Recording of Local Health Work.—By W. F. Walker, Dr. P. H., and Carolina R. Randolph, Division of Health Studies, The Commonwealth Fund, in cooperation with the Committee on Administrative Practice of the American Public Health Association. Published by The Commonwealth Fund, 41 E. 57th St., New York. 1935. *XVII* + 275 *pp.*, 9 *x* 12. $2.00.

Sound information on the organization, methods and effectiveness of local work cannot be secured unless accurate, detailed, uniform records of essential facts are obtainable on which comparisons may be based. This important volume makes clear the need for such records, and explains how they are used in a comprehensive, orderly plan by various bodies and organizations in the field of public health. Administrative and service record forms covering all divisions of the work are given: carrying the case; administering the service; and planning the future program in a particular field. The preparation and use of tables and charts is illuminated. Practical interpretation is an outstanding feature of this distinguished publication.

The 22d annual meeting of the New Jersey Mosquito Extermination Association was held at Atlantic City, N. J., March 6-8, 1935, and its Proceedings are issued in a pamphlet of 189 pages. Valuable information is presented on the principles and details of mosquito extermination and the progress made in New Jersey, with the connected projects that arose from the unemployment situation. Tables and charts coordinate and summarize the information. (Apply to Thomas J. Headless, Secretary of the Association, Dayton, N. J.)

The Cincinnati Bureau of Governmental Research has prepared for the Board of Health of Cincinnati a report (No. 63) on "Public Health Organization and Service, Hamilton County, Ohio." March, 1935. 136 pp. Charts; maps. It is a condensed statement of the findings and recommendations of Dr. Joseph W. Mountin, of the staff of the Surgeon-General Cummings, U. S. Public Health Service, who was assigned to make the survey. $1.00 plus postage. Apply to the Cincinnati Bureau of Governmental Research, Gwynne Bldg., Cincinnati, Ohio.)

"The Appraisal of Public Health Activities in Pittsburgh, Pennsylvania, 1930 and 1933" is the title of Social Monograph Number Two of the Bureau of Social Research, Federation of Social Agencies of Pittsburgh and Allegheny County, Pittsburgh, Pa. It has been prepared by Mrs. Marian H. Ewalt, Research Assistant, of the Bureau, and Dr. Ira V. Hiscock, Professor of Public Health, Yale School of Medicine, by the application of the Appraisal Form for City Health Work, developed by the American Public Health Association. This is a quantitative measure, and is not intended to evaluate character or efficiency. 125 pp. Tables; charts. (Apply to the Bureau of Social Research, 519 Smithfield St., Pittsburgh, Pa.)

"On Health's Highway—Progress in Relation to Cancer Control" is a booklet of 36 11 x 8½ pages, published by the New York City Cancer Committee, of the American Society for the Control of Cancer. It presents in pages of illustrations the chronological story of the rôle played by animals in the study of scientific medicine, thus forming an exhibit of the results of animal experimentation, and an argument against the restriction of these methods, particularly in reference to cancer research. 50c. (Apply to New York City Cancer Committee, 150 E. 83d St., New York.)

Social Welfare

A selected list of "Recent Pamphlets on Social Subjects" issued during 1934-1935 forms the April, 1935, Bulletin (Number 130) published by the Russell Sage Foundation. 12 pp. 20c. (Apply to the Foundation, 130 E. 22d St., New York.)

Civil Service

Problems of the American Public Service: Five Monographs on Specific Aspects of Personnel Administration.—By Carl Joachim Friedrich, Associate Professor of Government, Harvard University; William C. Beyer, Director, Bureau of Municipal Research of Philadelphia; Sterling D. Spero, Author of "The Labor Movement in a Government Industry"; John F. Miller, Member of Research Staff, Commission of Inquiry on Public Service Personnel; George A. Graham, Assistant Professor of Politics, Princeton University. XI + 433 *pp.* $4.00.

A Bibliography of Civil Service and Personnel Administration.—By Sarah Greer, Librarian, Institute of Public Administration. X + 143 *pp.* $2.00

Civil Service Abroad—Great Britain, Canada, France, Germany.—By Leonard D. White, United States Civil Service Commissioner; Charles H. Bland, Civil Service Commissioner of Canada; Walter R. Sharp, Professor of Political Science, University of Wisconsin; Fritz Morstein Marx, Princeton University. X + 275 *pp.* $3.00.

Training Public Employees in Great Britain.—By Harvey Walker, Professor of Political Science, Ohio State University. XI + 213 *pp.* $2.50.

Four publications of the Commission of Inquiry on Public Service Personnel. McGraw-Hill Book Company, Inc., New York. 1935. *Prices as listed, from* THE AMERICAN CITY.

The Commission was appointed at the close of 1933 by the Social Science Research Council, with the approval of President Roosevelt, to report in 1935 on the problem of personnel in the administrative, executive, and technical services of national, state and local government. The special studies here presented are the work of recognized experts whose summarizations of facts are submitted to the Commission as essential for consideration.

Planning

"Garden Cities and Satellite Towns" is a report of the Departmental Committee of the Ministry of Health of Great Britain, presented, 1935, in a 32-page pamphlet. The Committee was appointed to study garden cities and villages and satellite towns in order to make recommendations as to the steps, if any, that the Government or local authorities should take to extend the provision of such developments, to stimulate the location of industries in them, and to solve the problems of finance and local government involved; also to secure "that in the extension of existing towns industrial, residential, and other development are properly correlated." The analytical discussion of the "garden city" idea in contrast to casual, haphazard, and uncoordinated development leads to this statement: "We therefore advocate a definite policy of outward development taking the form of complete planned units with due provision for industry, residence, social services and recreation, at some distance from the original nucleus—a type of development for which the term 'Satellite Town' is not inappropriate." The implications of the adoption of this principle are explained, and the essential machinery involved is suggested. The whole report is most interesting to those who desire an intelligent view of ordered regional and national planning. 20c. (Apply to the British Library of Information, 270 Madison Ave., New York.)

A selected list of books, pamphlets, reports and articles dealing with land and community planning is given in 5 mimeographed sheets, by the American Society of Planning Officials, as a guide for those who wish to do a limited amount of reading in this field. The divisions of this brief bibliography are: General Works on Planning; National Planning; Regional Planning; State Planning; Housing; Zoning; Legal Aspects; Airports; Transportation and Traffic. It was prepared with the assistance of Lucile L. Keck, Librarian, Joint Reference Library, Chicago, and Katherine McNamara, Librarian, School of Landscape Architecture and City Planning, Harvard University.

Sewage Treatment

"Measurement of Intensity and Concentration of Odors Associated with Sewage Treatment Processes," by Gordon M. Fair, Associate Professor of Sanitary Engineering, and Edward M. Moore, Instructor in Sanitary Chemistry, Harvard School of Engineering, has been reprinted from the *Sewage Works Journal*, March, 1935, as No. 145 of the Publications from the Harvard Engineering School 1934-35. 18 pp. (Apply to Harvard Engineering School, Cambridge, Mass.)

Housing

Dr. Edith Elmer Wood, consultant for the Housing Division of the Federal Emergency Administration of Public Works, has prepared Housing Division Bulletin No. 1, "Slums and Blighted Areas in the United States." This important work shows the nation-wide need for slum clearance and rehousing of low-income groups, by explaining what bad housing actually is, and its effect on health, morals, safety and general welfare. It tells how slums originated and states the economic effects of slums and blighted areas. Housing conditions in various large cities are presented in Part II—New York, Chicago, Philadelphia, Detroit, Cleveland, St. Louis, Baltimore, Boston, Pittsburgh, Milwaukee, Minneapolis, New Orleans, Cincinnati, Indianapolis, Dayton. Housing conditions shown in the real property inventories of 1934 supervised by the U. S. Department of Commerce in 64 representative cities of diverse size and type throughout the country, form the subject of Part III, and Part IV is given to the housing conditions in the rest of the country. The impossibility of meeting the need through private enterprise is proved in Part V; and in Part VI the beneficial results of slum clearance and rehousing in Liverpool, Sheffield, The Hague, and Glasgow are given. A selected list of housing reports—Federal, state and local—forms the Appendix. 126 pp. (Apply to the Housing Division, Washington, D. C.)

Recreation

The Year Book Number of *Recreation*, May, 1935, published by the National Recreation Association, contains valuable reference material, as follows: A Summary of Community Recreation in 1934—Regular and Emergency Service (1 p.); Community Recreation Leadership, Facilities and Activities in 1934 (13 pp.); Tables of Playground and Community Statistics for 1934 in Cities Conducting Regular Service (49 pp.). The annual financial statement of the Association is included in this issue, also news items and notices of new publications. 88 pp. 50c. (Apply to National Recreation Association, 315 Fourth Ave., New York.)

Other Reports Received

BUFFALO, N. Y.—Buffalo Municipal Research Bureau, Inc.; Police and Firemen's Pension Funds of the City. Revised May, 1935. 35c. 30 mimeographed pp.

FALL RIVER, MASS.—Annual Report, Board of Finance, January, 1935. 27 pp.

GARDEN CITY, N. Y.—Annual Report of the Incorporated Village, May 15, 1935. 16 pp.

HOLLAND, MICH.—Annual Report, Board of Public Works, 1934. 56 pp.

LYNCHBURG, VA.—Annual Report of the City, 1934. 79 pp.

MILWAUKEE, WIS.—Municipal Activities for 1934, compiled and edited by the Municipal Reference Library. 240 pp.

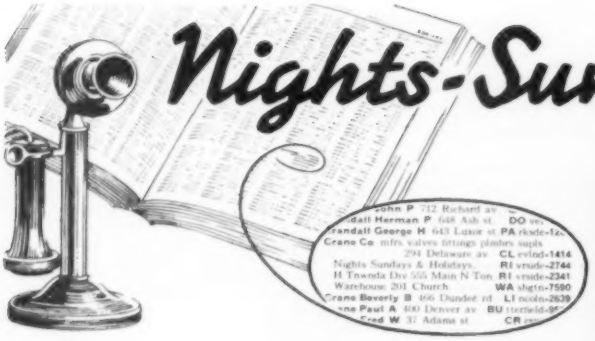
MINNEAPOLIS, MINN.—Budget Facts and Financial Statistics for 1935, issued by Board of Estimate and Taxation. 52 pp.

MONTREAL, QUE.—The Montreal Metropolitan Commission: Financial Statement and Assessments, 1934. 92 pp. plus folding inserts.

SALINA, KANS.—Annual Report, City Clerk, 1934. 31 pp.

SCHENECTADY, N. Y.—Annual Report, Bureau of Sewage Disposal, 1934. 14 pp.

WESTMOUNT, QUE.—Annual Reports, 1934. 47 pp.



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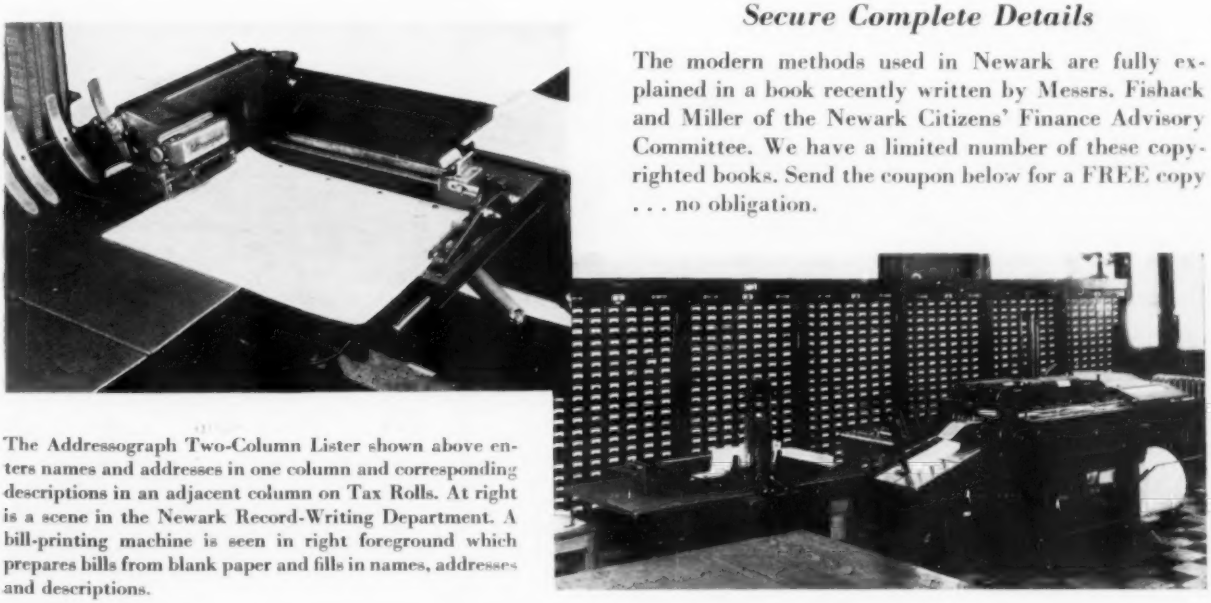

The Addressograph Two-Column Lister shown above enters names and addresses in one column and corresponding descriptions in an adjacent column on Tax Rolls. At right is a scene in the Newark Record-Writing Department. A bill-printing machine is seen in right foreground which prepares bills from blank paper and fills in names, addresses and descriptions.

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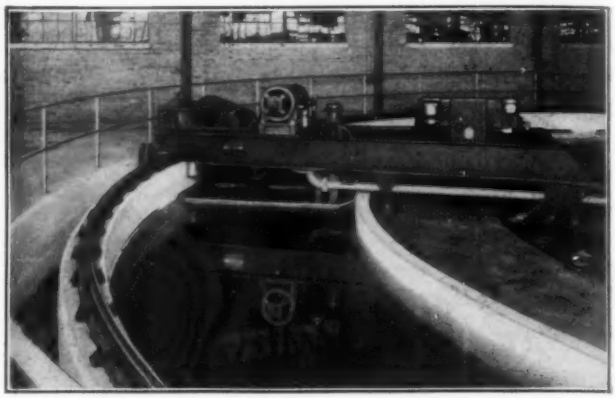

At the right you see the raw sewage entering the Laughlin Filter—in the center, the effluent, so clear that the full depth of the side walls is visible.

- The Laughlin Filter fits into any system of sewage treatment and gets results not otherwise secured in that system.
- It removes suspended solids—positively and economically—and delivers a well-clarified effluent.
- Applied to the settling basin to remove more and finer settleable solids, it yields such advantages as are quoted at the right.
- Only large and settleable solids can be removed by bar screens, fine screens or settling basins.
- In cases not requiring nitrification, the Laughlin Filter will displace trickling and sand bed filters—or reduce the load and increase the capacity of those filters. It also practically eliminates the fly and odor nuisance and pooling.
- The Laughlin Washer has few moving parts, washes the bed automatically as required and *permits continuous operation of filter without attention.*
- Power requirements are low. Head loss is less than 3″. Can be applied to existing tanks, either circular or rectangular.
- Investigate what is being accomplished in the chemical-mechanical plant at Dearborn, Michigan. Watch for the results of the experiments at Chicago, where the Laughlin Filter is added to an Activated Sludge plant—and at Coney Island, where it supplements Plain Sedimentation—and in other tests where it is added to and improves Chemical Precipitation. See the new plant soon to be put into operation at Perth Amboy, New Jersey.
- Four years of continuous testing and improvement permit us to furnish engineers with authoritative data which can be safely used as a basis for design. Write us for information.

With PLAIN SEDIMENTATION

. . . the Laughlin Filter increases removal of suspended solids from 40-50% to 65-70% *without the use of chemicals*—and steps up capacity without adding more clarifiers.

With CHEMICAL PRECIPITATION

Increases removal of suspended and colloidal solids from 70-80% to 90-95% with the same amount of chemicals—or reduces amount of chemicals required. Greatly increases flexibility of plant to meet daily or seasonal variations.

With ACTIVATED SLUDGE

Removes floc not settled out in final tank. Installed in primary tank, it cuts down load on aeration tank. Safeguards stream during temporary overloads or biological disturbances, until plant can be brought under control. Reduces aerating period—amount of air required—or both.

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CONVENTIONS—WHEN AND WHERE

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

JULY 8-11.—ATLANTIC CITY, N. J.
International Association of Chiefs of Police. Annual convention. (Ambassador Hotel.) Secretary, George Black, Wilmington, Del.

JULY 11.—NORTH LITTLE ROCK, ARK. (100)
Arkansas Municipal League. Secretary, Kenneth O. Warner, Fayetteville, Ark.

JULY 16-20.—LONDON, ENGLAND.
International Federation for Housing and Town Planning. Congress. Organizing Secretary, H. Chapman, 25 Bedford Row, London, W. C. 1, England.

JULY 16-17.—LOS ANGELES, CALIF.
Special Committee on Municipal Corporation Law—American Bar Association. Chairman, C. W. Tooke, School of Law, New York University, Washington Square East, New York.

JULY 18-19.—AUSTIN, TEXAS.
League of Texas Municipalities. Annual meeting. Executive Secretary, E. E. McAdams, 2220 Guadalupe Street, Austin, Texas.

JULY 23-25.—SCRANTON, PA. (300)
Pennsylvania Chiefs of Police Association. Annual convention. Secretary, F. B. Titus, Lansdowne, Pa.

AUGUST 4-11.—EVANSTON, ILL.
National Institute for Commercial and Trade Organization Executives. Annual session. (Northwestern University.) Secretary, John N. Van der Vries, 607 First National Bank Building, Chicago, Ill.

AUGUST 5-7.—BLANEY PARK, MICH.
Michigan Association of Chiefs of Police. Annual convention. Secretary-Treasurer, Capt. Donald S. Leonard, State Fair Grounds, Detroit, Mich.

AUGUST 20-22.—SIOUX CITY, IOWA. (300)
League of Iowa Municipalities. Annual convention. Secretary-Treasurer, Frank G. Pierce, Marshalltown, Iowa.

AUGUST 21-23.—AMHERST, N. S. (250)
Union of Nova Scotia Municipalities. Annual convention. Secretary, Hon. Arthur Roberts, Bridgewater, N. S.

AUGUST 22-23.—PITTSBURGH, PA.
American Water Works Association—Central States Section. Annual meeting. Secretary, H. K. Nelson, 2435 Koppers Building, Pittsburgh, Pa

AUGUST 22-23.—WILLIAMSPORT, PA. (250)
League of Cities of the Third Class in Pennsylvania. Annual convention. Secretary, Herman A. Early, City Hall, Harrisburg, Pa.

AUGUST 26-31.—HAMILTON, N. Y.
Governmental Research Association. Annual conference. (Colgate University.) Secretary-Treasurer, Robert M. Paige, 850 East 58th Street, Chicago, Ill.

AUGUST 26-SEPTEMBER 9.—TORONTO, ONT.
Ontario Municipal Association. Annual meeting. Secretary-Treasurer, H. L. Brittain, 137 Wellington Street W., Toronto, Ont.

AUGUST 27-29.—UTICA, N. Y. (225)
New York State Association of Chiefs of Police. Annual convention. Secretary-Treasurer, James L. Hyatt, 503 Western Avenue, Albany, N. Y.

AUGUST 28-30.—PHILADELPHIA, PA.
National Shade Tree Conference. Annual convention. Secretary-Treasurer, Dr. R. P. White, New Jersey Agricultural Experiment Station, New Brunswick, N. J.

SEPTEMBER 3.—NORTH BAY, ONT. (75)
Union of Canadian Municipalities. Annual convention. Secretary, Samuel Baker, City Clerk, London, Ont.

SEPTEMBER 3-6.—CINCINNATI, OHIO.
Illuminating Engineering Society. Annual convention. (Netherland Plaza Hotel.) General Secretary, D. W. Atwater, 29 West 39th Street, New York.

SEPTEMBER 9-10.—GRAND FORKS, N. DAK. (150)
League of North Dakota Municipalities. Annual convention. Executive Secretary, Myron H. Atkinson, Bismarck, N. Dak.

SEPTEMBER 11-13.—ANN ARBOR, MICH. (450)
Michigan Municipal League. Annual meeting. Director, Harold D. Smith, University of Michigan, Ann Arbor, Mich.

SEPTEMBER 12-14.—LAKE PLACID, N. Y.
American Forestry Association. Annual meeting. Executive Secretary, Ovid Butler, 1727 K Street N. W., Washington, D. C.

SEPTEMBER 15-18.—PORTLAND, ORE. (250)
American Institute of Park Executives and the American Park Society. Annual convention. Executive Secretary, William H. Walker, 2231 Inglewood Place, South Bend, Ind.

SEPTEMBER 16-18.—DENVER, COLO.
American Water Works Association—Rocky Mountain Section. Annual meeting. (Brown Place Hotel.) Secretary-Treasurer, B. V. Howe, 437 State Office Building, Denver, Colo.

SEPTEMBER 17-20.—PROVIDENCE, R. I. (550)
New England Water Works Association. Annual convention. (Providence-Biltmore Hotel.) Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 18-19.—HARLAN, KY.
The Kentucky Municipal League. Annual convention. Executive Secretary, Carl B. Wachs, Municipal Building, Lexington, Ky.

SEPTEMBER 19-21.—QUINCY, ILL. (500)
Illinois Municipal League. Annual convention. Secretary, A. D. McLarty, 500 East Capitol Avenue, Springfield, Ill.

SEPTEMBER 19-20.—KENOSHA, WIS. (600)
League of Wisconsin Municipalities. Annual convention. Secretary, Frederick MacMillin, 114 North Carroll Street, Madison, Wis.

SEPTEMBER 23, WEEK OF.—ATLANTIC CITY, N. J.
American Transit Association and Affiliated Associations. Annual convention. General Secretary, Guy C. Hecker, 292 Madison Avenue, New York.

SEPTEMBER 23-26.—SAN FRANCISCO, CALIF. (1,000)
League of California Municipalities. Annual convention. (Hotel Whitcomb.) Secretary, Richard Graves, 223 City Hall, San Francisco, Calif.

SEPTEMBER 24-27.—KNOXVILLE, TENN. (700)
International Association of Fire Chiefs. Annual convention. Secretary, James J. Mulcahey, Yonkers, N. Y.

SEPTEMBER 30-OCTOBER 4.—CHICAGO, ILL.
National Recreation Association. Annual congress. (Sherman Hotel.) Secretary, Recreation Congress Committee, Thomas E. Rivers, 315 Fourth Avenue, New York.

OCTOBER 4-5.—SCHENECTADY, N. Y.
Joint meeting. New England Sewage Works Association. Secretary, F. W. Gilcreas, State Department of Health, Albany, N. Y. *New York State Sewage Works Association.* Secretary-Treasurer, A. S. Bedell, State Department of Health, Albany, N. Y.

OCTOBER 4-5.—GRAND FORKS, N. DAK.
North Dakota Water and Sewage Works Conference. Annual convention. Secretary-Treasurer, M. D. Hollis, Bureau of Sanitary Engineering, Bismarck, N. Dak.

OCTOBER 5-7.—MILWAUKEE, WIS.
Conference of State Sanitary Engineers. Annual meeting. Secretary, R. E. Tarbett, U. S. Public Health Service, Washington, D. C.

OCTOBER 7-10.—MILWAUKEE, WIS.
American Public Health Association. Annual meeting. Executive Secretary, Dr. Reginald M. Atwater, 50 West 50th Street, New York.

OCTOBER 9-11.—COLUMBUS, NEBR.
League of Nebraska Municipalities. Annual meeting. Secretary-Treasurer, C. E. Beals, 204 Brownell Building, Lincoln, Nebr.

OCTOBER 14-16.—CINCINNATI, OHIO.
American Society of Municipal Engineers. International Association of Public Works Officials. Joint conference. (Netherland Plaza Hotel.) Executive Director, Donald M. Stone, 850 East 58th Street, Chicago, Ill.

OCTOBER 14-17.—HOUSTON, TEXAS.
American Water Works Association—Southwest Section. Annual convention. Secretary-Treasurer, Lewis A. Quigley, Fort Worth, Texas.

OCTOBER 14-16.—RICHMOND, VA. (200)
International Association of Municipal Electricians. Annual convention. Secretary, W. H. Harth, Columbia, S. C.

OCTOBER 14-18.—LOUISVILLE, KY.
National Safety Council. Annual Safety Congress and Exposition. Managing Director, W. H. Cameron, 20 North Wacker Drive, Chicago, Ill.

OCTOBER 14-18.—OKLAHOMA CITY, OKLA. (500)
National Tax Association. Annual conference. Secretary, W. G. Query, South Carolina Tax Commission, Columbia, S. C.

OCTOBER 15-16.—LOUISVILLE, KY.
Institute of Traffic Engineers. Annual meeting. Secretary-Treasurer, Hawley S. Simpson, 175 Fifth Avenue, New York.

OCTOBER 15-18.—SAN ANTONIO, TEXAS. (250)
National Association of Public School Business Officials. Annual convention. Secretary, H. W. Cramblet, Board of Education, Pittsburgh, Pa.

OCTOBER 16-19.—CHICAGO, ILL.
American County Association. Convention. Executive Director, Alex. B. LaZoris, Hotel LaSalle, Chicago, Ill.

OCTOBER 16-18.—WACO, TEXAS. (250)
Texas Public Health Association. Annual convention. Secretary, Lewis Bracy, State Board of Health, Austin, Texas.

OCTOBER 18-19.—ST. PAUL, MINN.
American Water Works Association—Minnesota Section. Annual meeting. Secretary-Treasurer, Ronald M. Finch, Wallace & Tiernan Co., Inc., 515 Flour Exchange, Minneapolis, Minn.

OCTOBER 20-23.—WASHINGTON, D. C.
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treasurer, R. H. Goddard, Worcester, Mass.

OCTOBER 21-23.—KNOXVILLE, TENN.
American Municipal Association. Annual meeting. Executive Secretary, Paul V. Betters, 850 East 58th Street, Chicago, Ill.

OCTOBER 21-23.—KNOXVILLE, TENN.
International City Managers' Association. Annual convention. Executive Director, Clarence E. Ridley, 850 East 58th Street, Chicago, Ill.

OCTOBER 21-23.—KNOXVILLE, TENN.
Municipal Finance Officers' Association of the United States and Canada. Annual convention. Executive Director, Carl H. Chatters, 850 East 58th Street, Chicago, Ill.

OCTOBER, THIRD WEEK OF (TENTATIVE).—ATLANTIC CITY, N. J.
Pennsylvania Water Works Association. Annual meeting. (Haddon Hall.) Secretary, Dr. F. Herbert Snow, 327 Telegraph Building, Harrisburg, Pa.

OCTOBER 23-26.—SAN DIEGO, CALIF.
American Water Works Association—California Section. Annual convention. Secretary-Treasurer, J. E. Phillips, 207 South Broadway, Los Angeles, Calif.

OCTOBER 24-26.—SAN ANTONIO, TEXAS.
County Judges and Commissioners of Texas. Annual convention. Secretary, Judge Ben Brooks, Kauffman, Texas.

OCTOBER 25-26.—URBANA-CHAMPAIGN, ILL.
Central States Sewage Works Association. Annual meeting. Secretary-Treasurer, G. H. Rade-laugh, Urbana-Champaign, Ill.

OCTOBER 28-NOVEMBER 1.—ATLANTA, GA.
American Prison Association. Annual congress. General Secretary, E. R. Cass, 135 East 15th Street, New York.

NOVEMBER 4-6.—DURHAM, N. C.
American Water Works Association—North Carolina Section. Annual convention. Secretary, M. F. Trice, State Board of Health, Raleigh, N. C.

NOVEMBER 6-8.—DES MOINES, IOWA.
American Water Works Association—Missouri Valley Section. Annual meeting. Secretary, Earl L. Waterman, University of Iowa, Iowa City, Iowa.

NOVEMBER 7-8.—ROANOKE, VA.
American Water Works Association—Virginia Section. Annual conference. (Hotel Roanoke.) Secretary, H. W. Snidow, Department of Health, 601 State Office Building, Richmond, Va.

NOVEMBER 25-26.—PROVIDENCE, R. I.
National Municipal League. Annual conference on government. Secretary, Howard P. Jones, 309 East 34th Street, New York.

DECEMBER 9-12.—MIAMI, FLA. (400)
American Association of State Highway Officials. Annual convention. Executive Secretary, W. C. Markham, 1222 National Press Building, Washington, D. C.

USED on Hundreds of PWA JOBS

BECAUSE

The WORLD OVER USES BADGER METERS BECAUSE THEY STAY ACCURATE WITH LOW MAINTENANCE COSTS

Numerous PWA projects throughout the country include Badger Water Meters—such recognition attests to their sound design and construction.

Badger Disc Meters have the largest capacities, size for size, with the least absorption of pressure and are especially sensitive and accurate from the smallest trickle to the maximum capacity flow.

Simplicity of construction is accentuated in Badger Meters—they are durably built, and economical to operate and maintain.

BADGER METER MFG. CO., Milwaukee, Wis.
Branch Offices in New York City, Tampa, Fla., Seattle, Wash., Savannah, Ga., Syracuse, N. Y., Marshalltown, Iowa, Kansas City, Mo., Los Angeles, Calif., Chicago, Ill., Salt Lake City, Utah, Waco, Texas, Philadelphia, Pa.

BADGER METERS ASSURE

- Durability
- Large Capacity
- Extreme Accuracy
- Minimum Maintenance
- Low Pressure Absorption

30th ANNIVERSARY
BADGER METER MFG. CO. WAS FOUNDED IN 1905
This year it celebrates its 30th Anniversary

BADGER *Water* METERS

NEWS AND ILLUSTRATIONS

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

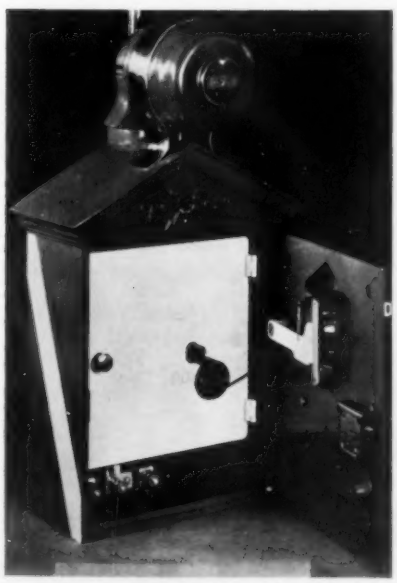
Those Troublesome False Alarms

The serious aspect of false fire alarms has long been known to firemen. A number of items in the newspapers recently have helped make the public acquainted with these funsters of all ages and degrees, and a recent pronouncement by Fire Commissioner John J. McElligott of New York City brings the matter squarely to the notice of the property owner. Coincident with this interest comes the announcement of a device for discouraging the malicious pulling of street boxes. This is most important because the type of intellect that gets a kick out of such excitement, trouble-making and foolery is more likely to pull a box than to subject itself to telephone cross-examination.

It is doubtful if New York's record for false alarms can be matched by that of any other city. Total 1934 alarms legitimate and false numbered 1,060 by telephone; 32,148 by box; 1,992 by other means; a total of 34,140. Of these, 13,011, or 36 per cent, were false alarms, and it is evident that most of these were sent in by box.

The Gamewell Company, Newton, Mass., comes forward with a little device that has a loud voice not easily confused with automobile horns and other street noises. It can be mounted on the peaks of existing municipal fire-alarm boxes, and howls simultaneously with the pulling of the hook. This should attract the attention of storekeepers, passers-by, and especially the nearest patrolman, and somebody is likely to observe the puller.

The howler is in a trim red finished metallic case held by a stainless steel band. Running from the device itself at the top of the box is a flexible steel shaft that connects with the pull lever of the box signal movement. When the box is operated, the pulling-down on the lever pushes upward the steel wire inside the flexible shaft so that it trips the mechanism of the Arrestolarm. A winding handle is provided for the use of the fireman who is charged with the rewinding of the box after an alarm. The Arrestolarm is standard for all modern boxes having the quick action of Cole Keyguard types of doors, and as a special unit can be adapted to any existing municipal fire-alarm boxes.



THE ARRESTOLARM MOUNTED ON A GAMEWELL FIRE-ALARM BOX

Chase Elected to Sportsmen's Council

In recognition of his outstanding water conservation and public health work, E. French Chase, Sanitary Engineer of the city of Seattle, Wash., was elected an honorary member of the Washington State Sportsmen's Council at its meeting held in March. Sportsmen's organizations in this state are carrying on an aggressive campaign against pollution.

Burns & McDonnell Open Albany, N. Y., Office

The Burns & McDonnell Engineering Co., consulting engineers, Kansas City, Mo., has announced that owing to the increasing number of engineering engagements which it has throughout the eastern territory, a permanent engineering office has been opened in the Home Savings Bank Building, Albany, N. Y., in charge of Hartwell J. Rosson, who was formerly in charge of the Cincinnati office. The Cincinnati office is now in charge of M. C. Bartlett.

This engineering firm now has work in progress in the eastern territory at Yonkers and Auburn, N. Y., Newport, R. I., Cumberland, Md., and New Castle, Pa.

Fence Manufacturer Adopts Bethanized Wire

The Anchor Post Fence Co., Baltimore, Md., has adopted Bethanized wire for both fence fabric and barbed wire. According to the manufacturers, this new wire has a protective zinc coating that is almost 100 per cent pure. The coating is applied to the steel base wire by means of a newly developed electrolytic process that deposits the zinc in perfect uniformity on all parts of the wire surface and no tears or drops can possibly form. Accelerated corrosion tests show that this new wire has greater life than it has previously been possible to obtain with the conventional hot-dip galvanized product.

Thrust Load Losses Determined Before Pump Installation

One of the bugaboos of pump installations is the discrepancy between theoretically computed efficiencies and the actual efficiency recorded after a deep-well pump is installed. This has caused no end of trouble in cases where efficiencies are guaranteed. Pump manufacturers have accepted the efficiency ratings set forth by motor manufacturers and have calculated the theoretical loss of efficiency in the pump. But when the installation was completed certain losses became evident. The pump manufacturer was actually "on the spot" or was obliged to set the guaranteed efficiency several points below his computations.

The question naturally arises, "What are these losses?" When making efficiency guarantees for deep-well turbine pumps, a point often overlooked is the increased power loss of thrust bearings when operating under load. This loss should be included in calculations if a true basis for performance guarantee is desired. In the majority of instances the methods commonly adopted for testing vertical motors have not taken this thrust loss into consideration. The motor was tested and found to have a certain efficiency, but the true efficiency under actual field conditions would be below the tested value, owing to this thrust loss.

Engineers of the U. S. Electrical Motors, Inc., 200 East Slauson Avenue, Los Angeles, Calif., recently completed construction of special electric dynamometers which eliminate the error due to stray load losses when testing motor efficiency. The loss due to thrust is determined by referring to a chart for the particular bearing and speed in question. This recently developed method has aroused keen interest among pump manufacturers and hydraulic engineers. The apparatus consists essentially of two angular contact thrust bearings so mounted that thrust loads of equal magnitude may be imposed upon both bearings while they are operating at some constant speed. The power loss due to the thrust load is obtained by means of accurate electrical instruments which measure the electrical in-put to the previously calibrated driving motor. No thrust load is applied to the driving motor, and thus the only power loss due to the thrust load is evidenced in the thrust bearings under test.

Various oiling systems were tried out, and the final result was a system which allowed close duplication of the actual conditions present in a motor for deep-well turbine pump service. In this type of motor, the oil is fed through the bearing in relatively small amounts, which prevents undue power loss due to churning and heating.

TO THE MAN WHO GETS BLAMED WHEN HYDRANTS FAIL AT FIRES

We're on your side by nature. We've been trying to help in this fight against fire since the first water pipe was laid in America—since we constructed the revolutionary Mathews Hydrant 65 years ago . . . Of course you have problems that even we can't guess, for all our years of experience. But we are familiar with hundreds of kinds of trouble between reservoir and hose nozzle, and we know that everything from careless motorists to the weather battles against your preparedness-for-fire.

We try to make you hydrants, valves, and pipe that won't fail. We ask you to call on us at any time, by letter, phone, or telegraph. And in the same spirit we make this suggestion: Don't complicate your struggle by risky or inadequate equipment. Demand the best, even if you have to appeal to the citizens you serve.

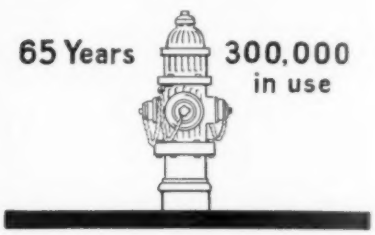
Insist on fire hydrants that will stand off every possible emergency in the next 50 years. Refuse every make until it satisfies you on the following counts:

Corrosion: Insist that iron never work against iron. Only properly designed bronze mountings can prevent rust and stiffness in a seldom-used mechanism which must work perfectly.

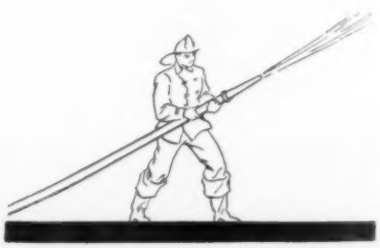
Frost: Demand three protections: Positive drainage, so that ice can't form in the barrel. Operating threads sealed above and below, so that cold snaps can't freeze them tight. A loose outer protection case, so that heaving frozen ground can't break the hydrant or loose it from the main.

Simplicity: Don't fool with "good-idea" gadgets. Buy a hydrant with years of manufacture and use. It will have enough parts but not too many.

Traffic protection: With more cars on the street than ever in history, demand and get protection against them. Buy rugged strength so that minor accidents won't wreck hydrants. But buy, too, a hydrant that can be instantly repaired *above ground* without digging.



These demands are only horse-sense. But they aren't easy to meet. It has taken us 65 years to satisfy ourselves that Mathews Hydrants are right. A long list of water works men agree enthusiastically.



So demand your rights and ask us to back you up. We will go with you or for you to any person or group which must be convinced. Between us we can get you the Mathews Hydrants which will save the lives and property in your community.

MATHEWS HYDRANTS

and "SAND-SPUN" PIPE, a superior grade, centrifugally cast in sand moulds.

SOLD BY
ESTABLISHED 1803 **R. D. WOOD CO.** 400 CHESTNUT ST.
PHILADELPHIA

When you write for that catalog, kindly mention THE AMERICAN CITY.

A PAIR OF THE NEW BUFFALO-SPRINGFIELD EXTENSION ROAD ROLLERS

A New Extension Road Roller to Keep Bumps Out of Asphalt

It was prophesied nearly a decade ago that when highway officials and the manufacturers of asphalt paving equipment wrote specifications and built machines that produced pavements as smooth as the more expensive types, then bituminous paving would receive the recognition of the public. That time seems to have arrived. We now have 10-foot specified straight-edges for checking the pavement, and Ohio demands not more than ¼-inch bumps in 10 feet for hot-laid pavements. The asphalt finishing machine has done much to bring about smoother, more uniform texture hot-mix pavements, and steps have been taken to provide roller equipment which will complete the job.

A new 10-ton extension roller has been placed on work in California and Ohio by the Buffalo-Springfield Roller Co., of Springfield, Ohio. The new machine has four wheels, the new fourth wheel being placed ahead of the standard front roll, and the machine has a wheelbase of 16 feet 3¼ inches. The two front rolls, one behind the other, steer on the same radius, and one or both of the front rolls are always in contact with the surface; hence, the machine is steerable at all times. An indicator on the kingpin of the front roll shows all bumps in the pavement, so that the roller man knows just what he is doing.

The diameter of the two front wheels is 36 inches, and both are 40 inches wide. The rear wheels are 60 inches in diameter and 20 inches wide, with an overlap of 4 inches over the front wheels. All four rolls are machine-faced to insure uniform smoothness.

This extension roll machine has a compaction of 100 pounds per linear inch more than a standard 10-ton tandem roller.

It is interesting to note that on the first job on which one of these rollers was used in the East, on a state highway in Ohio, in the first mile of rolling there were only two bumps. The first was at a hand-raked street intersection, and the other at a catch-basin near the curb, where it was not deemed advisable to run the new roller over the casting.

Another observed feature was the actual added pressure exerted by the second roll when it rested on a high spot. The roller was in reverse, stopped and started forward with the second roll on a high spot. The first roll, clear of the pavement by a small fraction of an inch, continued to turn in reverse until the machine moved forward a few inches and the front roll reached the surface again. Then it stopped and started to roll forward with the machine.

Uniform Dry Chemical Feed in Small or Large Volume

Dustless feeding of dry chemicals at a uniform rate, varied by hand adjustments as desired, features the MOF chemical feeder, developed by Wallace & Tiernan Co., Inc., Newark, N. J. The standard feeder is designed to deliver chemicals from a minimum rate of 0.8 to a maximum rate of 100 pounds per hour. A larger machine is now available for handling as much as 2,000 pounds per hour.

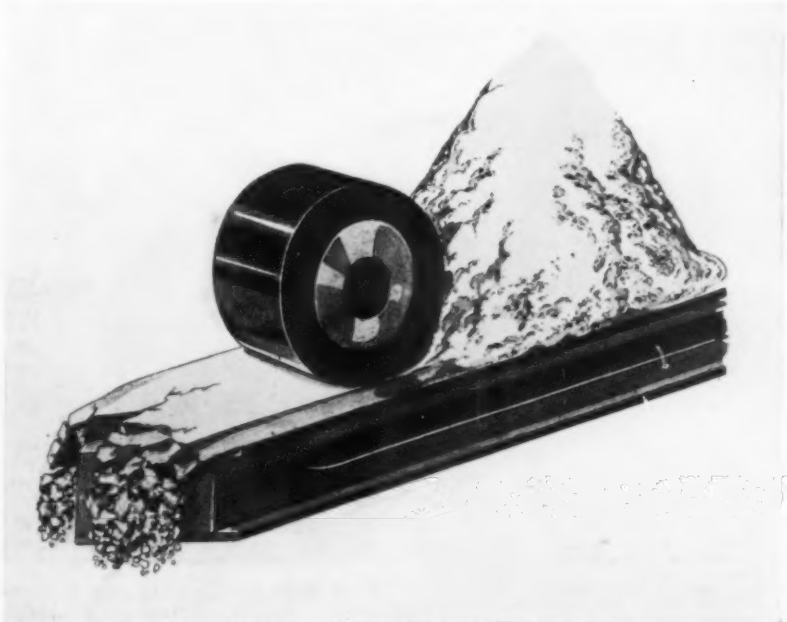
The steep sloping hopper is flexed from round to eliptical to round so as to keep each particle of chemical constantly in motion and prevent arching. The oscillating feed spout travels backwards and forwards across the feed slide, preventing clogging. The free wheeling feed roll insures uniform extrusion of the chemical from the feed plate. This unit is rotated by a feed roll lever and is so constructed that the roll itself is free to turn on the shaft when the feed spout moves back, but is locked to the shaft and therefore slides with the chemical when the feed spout moves forward.

A special gear head motor is mounted in the rear of the feeder so that a minimum number of bearings and levers are required to operate the mechanism. This ¼-horsepower motor is an integral part of the drive assembly, eliminating stuffing-boxes and flexible couplings.

The feeder is so designed that the load of chemical does not affect the accuracy of feed, and it is therefore adaptable for overhead feed from an upper charging floor or bin. Automatic pH control is available with this feeder, the additional apparatus consisting of a sampling device which automatically collects a sample of the treated water, determines the pH and if necessary automatically corrects the rate of chemical feed to maintain a predetermined pH adjustment.

Guy Northrop Made Kentucky Colonel

Guy C. Northrop, General Sales Manager, Hydraulic Development Corporation, New York City, and President of the Water Works Manufacturers' Association, received a Colonel's commission on the staff of Governor Ruby Laffoon of Kentucky, at a luncheon at the Hotel Netherland Plaza, Cincinnati, Ohio, on May 28, 1935.



THE FREE-WHEELING FEED ROLL OF THE WALLACE & TIERNAN MOF CHEMICAL DRY FEED MACHINE

"We find use for HTH almost daily"

Says C. R. Wightman, Director of Public Works, City of Benton Harbor, Michigan. "We would consider our chemical stores incomplete without a goodly supply of HTH."

THE wide usefulness of HTH in water works practice is well illustrated at Benton Harbor, Michigan, where C. R. Wightman, Director of Public Works, "finds use for it almost daily." Following the statements quoted above, Mr. Wightman continues:

"During the past season we changed our plant from steam power to electricity necessitating new connections to pumps and discharge mains. We employed HTH in the disinfection of pumps and piping, with the result that the entire change was made without contamination of the water output.

"Some twenty dead ends were also connected and in every case the new pipe was disinfected with HTH. It is also used in the periodical cleaning of the clear-water reservoir and of the coagulation basins. We treat our filter beds frequently and for the past two years our output has had a zero B coli index.

"A number of the summer resorts in the vicinity of Benton Harbor having their own water systems have experienced contamination and on recommendation of our chemist have had satisfactory results from the use of HTH. One resort developed a typhoid case and traced it to their storage tank. We furnished them HTH and it cleared up immediately.

"We also use Mathieson Liquid Chlorine exclusively and find it invariably satisfactory as to uniformity and purity."

A 72-page handbook on water purification by W. L. Savell is available free of charge to city officials and engineers. This book, "Hypo-Chlorination of Water" (Second Edition), contains nearly 50 illustrations and shows up-to-date methods and equipment. It tells you what to do under both ordinary and emergency conditions —and how to do it. Send for your copy today.

The MATHIESON ALKALI WORKS (Inc.)
60 EAST 42nd STREET NEW YORK, N. Y.

Soda Ash . . . Liquid Chlorine . . . Bicarbonate of Soda . . . HTH and HTH-15 . . . Caustic Soda . . . Bleaching Powder . . . Ammonia, Anhydrous and Aqua . . . FH-Plus (Fused Alkali) . . . Solid Carbon Dioxide.

HTH is readily soluble and more than twice as concentrated as ordinary chlorinated lime. It is not affected by weather conditions and retains its full strength for months. No special equipment needed. No returnable containers. Shipped in cases of one dozen 4-lb. cans and drums of 75 lbs. net.

Filter house and pumping station, Benton Harbor Water Works, where HTH and Mathieson Liquid Chlorine are used regularly.

SMITH POROUS DRAIN PIPE

A Porous Drain Pipe

A porous drain pipe with interlocking ends which drains and irrigates has been brought out by the Smith Porous Drain Pipe Corp., 405 Penn Avenue, Pittsburgh, Pa. This drain pipe is made of hard, coarse, porous materials, specially prepared, and bonded together with portland cement. It is porous through its entire wall surface, which permits the free and rapid flow of water in or out of the pipe for either drainage or irrigation. All materials entering into the construction of this Smith Porous Drain Pipe are of a hard and durable nature. It increases in strength with age and will outlast ordinary drain pipe. The entire wall is of porous construction which permits the permeating of the maximum amount of water and of much greater volume than pipe laid with openings only at joints. Made with interlocking ends, they can be laid in perfect and permanent alignment, and very rapidly, eliminating wrapped joints. Freezing and thawing will not disturb them and it is not necessary to use more than one-half the usual amount of crushed stone, gravel or cinder construction over the pipe when using Smith Porous Drain Pipe.

This pipe is recommended for use at airports, on highways, on golf courses, tennis courts and athletic fields, in septic tanks, on parks and farms, and by railroads.

A Self-Contained Thru-Flow Cone Valve

A self-contained cone valve consisting of a casing or body with a plug valve having a circular waterway and with a toggle type rotor mechanism that functions constantly in a bath of oil, for axially seating, rotating without rub or friction wear, and axially receding the plug valve drop tight in both open and closed positions has been announced by Golden-Anderson Valve Specialty Co., Fulton Building, Pittsburgh, Pa. By means of a hydraulic cylinder equipped with a suitable pilot control, it is possible to function this cone valve as an altitude control valve, an automatic check valve, a sewage disposal valve, a pressure-reducing valve, a liquid level control valve, a surge compressor or relief valve, a coke quenching valve, or a remote control valve.

The advantages claimed for the Golden-Anderson Thru-Flow cone valve are numerous. There is no more loss of head through this valve than through a piece of straight piece of pipe of the same length and diameter, because the valve seats tight in open position, thereby insuring a smooth, continuous pipe line surface through the valve. The rotor mechanism for unseating, rotating, and reseating the plug valve, being sealed in oil, eliminates wear and insures long service. The rugged bearings, top and bottom, insure long life for the plug valve, and exact center alignment with the plug valve in any position, and the possibility of rattling or creeping is eliminated. Because this unit is a stop valve as well as a regulating or automatic valve, it eliminates the necessity for other valves in the line.

There is no scoring of the seats in the full open position, because the plug valve seats tight without any gap between the casing and the seating surfaces. Water-hammer and shock are reduced to a minimum because of the timing of the operation of the valve for any existing conditions. The valve is drop tight because the powerful toggle type rotor mechanism seals the plug in both open and closed positions. Under highly unbalanced pressures, the valve is still easy to operate, without by-passing and without strain or unusual wear. The plug valve is adjusted quickly and easily from the outside for any rotating clearance desired. The operating and control mechanisms may be serviced or replaced without shutting down the line.

The body castings, with substantial seats, and the plug valves with four seat rings for seating the valves tight in open or closed positions, are built to surpass the standard set by the A.W.W.A.

New Low-Pressure Truck Tire

A new low-pressure truck tire especially designed for a 112-inch wheelbase truck has been announced by the B. F. Goodrich Co., Akron, Ohio. This Safety Silvertown Commercial 15 for half-ton trucks has the combined advantages of an automobile tire and a truck tire, is sized for a 15-inch diameter wheel, and has a standard rim providing adequate low-pressure construction with greater resistance to skidding.

Carrying 15 to 24 pounds air pressure, depending upon the load, this tire is designed as nearly round as possible so the air pressure will be exerted equally in all directions. There is a 40 per cent greater contact area in the new tire.

Buffalo Office for Pittsburgh Equitable

The Pittsburgh Equitable Meter Co. and its subsidiary, the Merco Nordstrom Valve Co., both of Pittsburgh, Pa., have announced the opening of a district office in Buffalo, N. Y., to better serve the trade in the territory of western and central New York State. The new office is located in the Iroquois Building at 37 Church Street and is in charge of District Manager C. F. Thomas, who has represented these companies in New York for a number of years. He will be assisted by D. A. Gardner.

BOYS TAKE OVER LOS ANGELES POLICE DEPARTMENT

On the day thirteen Ford V-8's were delivered to the Los Angeles Police Department, young men of the local Order of De Molay were acting as heads of the various departments of the city government. Pictured from left to right are: Captain Walter E. Weyerman, in charge of ordnance and transportation; Glenn Grown, De Molay "Acting Captain" for the day; Don Morgan, De Molay "Acting Chief of Police"; Chief of Police James E. Davis; John S. Moffatt, Wholesale Manager of the Long Beach branch of the Ford Motor Co.; E. C. Dahlem, Mgr., William L. Hughson Co., Ford dealership that delivered the cars

MUD-JACK METHOD

Curb and gutter depression before application of Mud-Jack Method

No. 10 N. E. C. Mud-Jack

Above curb and gutter after elevation by the Mud-Jack method—Reconstruction cost has been saved

Saves the Curb, Gutter and Sidewalk

The Mud-Jack method of raising concrete curb, gutter, walks, and streets has solved the problem of reclaiming and correcting sunken concrete slab. It is the modern method to increase the life of concrete. Curb, gutter, walks and streets can be raised to original grade. All of this without reconstruction — the saving accomplished pays for the machine in less than one season's operation — in addition to the protection of the original investment.

Write for Mud-Jack Bulletin AC

KOEHRING COMPANY

Milwaukee Wisconsin

For Raising Concrete Curb, Gutter, Walks, Street

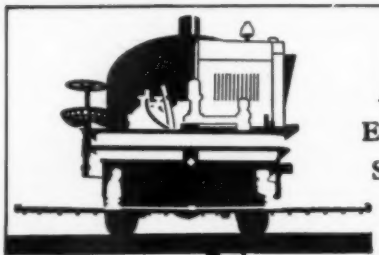
THE
"Murdock" Outdoor Drinking Fountain
(Anti-freezing)

Positively the most practical fountain for public service obtainable. Highly endorsed by over 800 municipalities alone.

Splendid for
PARKS, PLAYGROUNDS, ATHLETIC FIELDS, RECREATION CENTERS, OPEN SQUARES, PUBLIC STREETS

Write for complete information to

The Murdock Mfg. & Supply Co.
CINCINNATI, OHIO
Makers of outdoor water devices since 1853



Asphalt Distributors
Asphalt Kettles
Emulsion Sprayers
Surface Heaters
Tool Boxes
Oil Burners
Lead Furnaces

LITTLEFORD BROS.
500 EAST PEARL STREET
CINCINNATI, OHIO

EVERWEAR OFFERS THE SAFEST MERRY-WAVE-STRIDE

Fully covered by patents which include the many exclusive safety features, this Merry-Wave-Stride insures complete safety to the children in your parks and recreation grounds. EverWear Merry-Wave-Stride gives more action and exercise.

You owe it to your children to install the safest equipment—EverWear's Patented Stride. Ask for complete details.

USE SPRING RUBBER SAFETY SEATS FOR YOUR SWINGS

An ingenious arrangement of rubber and steel, patented by EverWear, which eliminates all the hazards of former type swing seats.

This EverWear seat is soft, springy, resilient, has remarkable safety features, strength and durability. Priced low enough to meet your budgets. Write for details. Ask for complete new catalog.

THE EVERWEAR MFG. CO.
SPRINGFIELD, OHIO, U. S. A.

Fin-Lay-Cold
MAXIMUM TRACTION NON-SKID

We Have An Interesting Brochure—
"THE INEVITABLE ROAD"
that deals with the most scientific of all cold bituminous mixtures—*mailed free on request.*

SAM E. FINLEY, Atlanta, Ga.

THE NEW 3-INCH HOMELITE PUMP UNWATERING A MANHOLE

New Light-Weight Portable Pump

A new fully portable, self-priming centrifugal 3-inch pump has been announced by the Homelite Corporation, Port Chester, N. Y. It weighs only 96 pounds complete with a built-in, air-cooled gasoline engine and is capable of handling 15,000 gallons per hour. It has a guaranteed suction lift of 28 feet and is built to handle muddy water with solids.

The main parts of the pump body, crankcase and end plate are made of a special abrasion-resistant aluminum alloy which weighs only one-third as much as cast iron. The manufacturer states that this pump handles 35,000 gallons of water per gallon of gasoline. The pump is readily stored in a tool-box, carried in an ordinary passenger car or tucked in an out-of-the-way corner of a truck. An illustrated descriptive bulletin may be obtained from the Homelite Corporation, 71 Riverdale Avenue, Port Chester, N. Y.

New General Sales Manager of White Motor Company

J. N. Bauman, Assistant Sales Manager of the White Motor Co., Cleveland, Ohio, has recently been promoted to the position of General Sales Manager. In this new position, Mr. Bauman will direct the sales activities of White through a world-wide sales organization of 80 direct factory branches and several hundred dealers. He succeeds George F. Russell, resigned.

Road Surface Stabilization

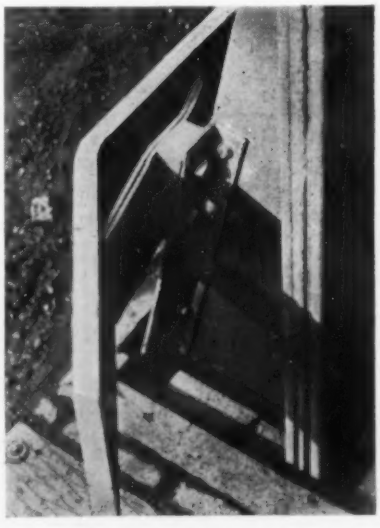
A 56-page illustrated bulletin replete with detailed specifications, tables and data on materials and methods for the construction of low-cost stabilized roads has been prepared by the Solvay Technical and Engineering Service. Free copies of this Bulletin No. 1, "Road Surface Stabilization," may be secured from the Solvay Sales Corporation, 40 Rector Street, New York.

Road Guards for Bridges Are Mounted with Springs

Bridge members, bridge sidewalks and vehicular traffic can be protected to greater advantage if road guard is used on every bridge structure. Rex guard, made for this purpose by the Rex Road & Bridge Guard Co., Pittsburgh, Pa., consists of rolled steel channels of formed sections of variable thicknesses. Flexibility is provided by the back support, which involves either one or two flat spring steel sections, the latter in turn bolted to the bridge members. Recommendations favor a distance between supports of not over 20 feet.

Flanged sections with rounded corners offer the least possibility of damage to vehicles and passengers. This design also has the advantage of providing for expansion and contraction as the result of temperature changes.

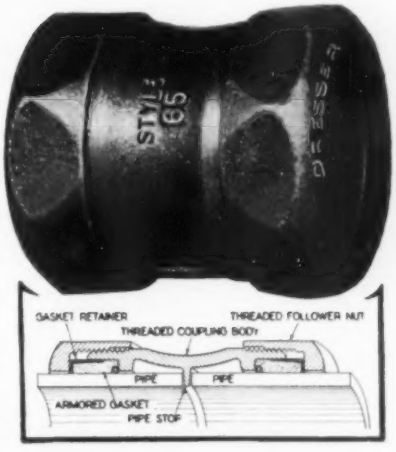
A 110-foot installation of this guard on the Highland Park Bridge, Pittsburgh, Pa., was made of ¼-inch plates formed into channel sections and supported on steel springs, 32 inches long and 8 inches wide, fastened to the bridge members about 13 feet apart. The channel has a 12-inch face and is placed 24 inches above the roadway to the center of the guard. This unit is so flexible that it responds easily to the pressure of the hand, but it is designed primarily to withstand the heavy impact of motor vehicles.



END OF REX GUARD, SHOWING SPRING MOUNTING

New Type Pipe Coupling Simplifies Joint Making

Several new features are incorporated in a self-contained pipe joint recently announced by S. R. Dresser Manufacturing Co., Bradford, Pa., for standard steel pipe sizes from ⅜-inch inside diameter to 2-inch inside diameter inclusive, black or galvanized. To make a connection with this Dresser Style 65 compression coupling all that is needed is the pipe, the joint itself and an ordinary wrench.



THE DRESSER STYLE 65 SERVICE PIPE COUPLING

Plain end pipe is used, with no special preparation of the pipe ends, such as threading, grooving or flaring. Making the joint simply involves inserting the pipe end into the coupling, which comes assembled, and then tightening two threaded octagonal nuts with the wrench. The resulting joint is tight, absorbs normal vibration, expansion and contraction movements, and permits deflections of the pipe in the joint.

Flexibility plus permanent tightness, according to the manufacturer, is made possible by two resilient gaskets that encircle the pipe ends, one gasket around each end. As the nuts are tightened, these gaskets are compressed tightly around the pipe, gripping it and giving a positive seal.

Advantages claimed by the manufacturer are that the pipe need not be cut to exact lengths, joint-making in cramped quarters is simplified, repairs on old lines can be quickly and easily made, and the joint is suitable for exposed lines because of its compactness and neat appearance.

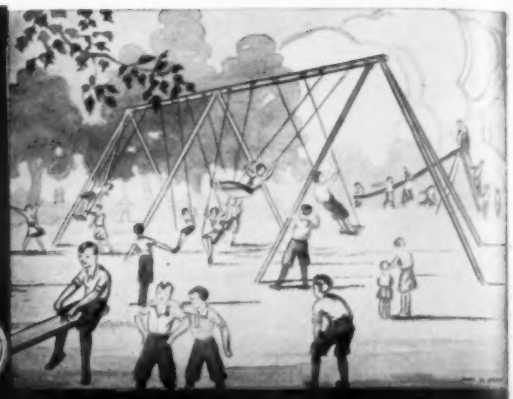
Set this signal in the pavement, right out in front—where drivers are looking. They are warned by it, but if one of them fails to stop in time, his car passes right over the sign, flattening it out. Then this flexible signal springs back into position again; and no harm is done, to either car or signal.

Write for circular describing the

MASTER TRAFFIC SIGNAL

Cornell Traffic Appliance Company
Water & Bristol Sts. Saginaw, Mich.

MEDART



PLAYGROUND APPARATUS

Write for Playground Apparatus Catalog P-2

When Swings, Slides, Giant Strides, See-Saws and all the other equipment available for modern play-yards, claim your attention—consider MEDART PLAYGROUND APPARATUS—especially if safety, service and durability concern you most. . . . Sixty-two years of manufacturing experience is reflected in every piece of MEDART *Tested* APPARATUS. . . . Let us help you plan your playground.

Consult with "MEDART" when considering Gymnasium Apparatus, Basketball Backstops, Steel Lockers, Wardrobes, Cabinets or Shelving.

FRED MEDART MANUFACTURING COMPANY
3536 DeKalb Street ★ ★ ★ St. Louis, Mo.
Sales Engineers in all Principal Cities—Consult your Telephone Directory.

Pierce Power Rollers
for Street and Park Maintenance

Cities all over the United States and Canada are using Pierce Rollers for light construction work and for maintenance of streets and alleys. These Rollers are also ideal for leveling drives in parks and for rolling park lawns. They offer the most practical means of keeping tennis courts, playgrounds, race tracks, athletic fields and airports in proper condition.

Built in three serviceable models: ¾, 1½-2, and 3-ton. You save money when you buy Pierce Rollers. Write for information.

The Pierce Governor Company
Anderson, Indiana

Cut Mowing Costs . . . with a DETROIT MOTOR SCYTHE

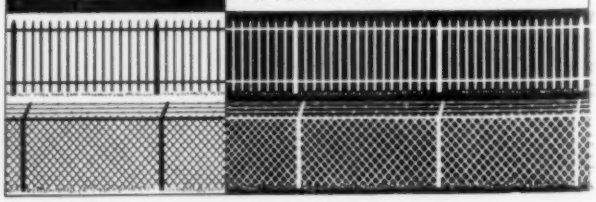
- Here is the most economical and easily handled cutter on the market.
- It goes anywhere, cuts anything, and enables one man to do the work of four or more with hand scythes.
- It has a 36-inch sickle driven by a powerful one-cylinder gasoline motor and is mounted on a free running 30-inch wheel, allowing it to be backed up, pivoted sharply, or tilted up or down slopes similar to a wheelbarrow.
- It is now being produced by a recognized leader among mower manufacturers and during over four years of service, thousands of users have testified to its economy and dependability.

DETROIT HARVESTER CO.
5450 W. JEFFERSON AVE., DETROIT, MICH.

Write for prices and Bulletin No. 10

FENCE *for every* **PUBLIC PROPERTY** *need*

Stewart FENCES
IRON AND CHAINLINK WIRE
New Catalog Sent Upon Request
THE STEWART IRON WORKS CO., INC.
110 Stewart Block Cincinnati, Ohio



Variable Speed Machine for Hypo-Chlorination

A convenient means of sterilizing water through the use of stabilized hypochlorite salts injected under pressure into water lines is made possible by the Midget Chlor-O-Feeder. This variable speed pump has a quick adjustable stroking rate through a 10 to 1 range.

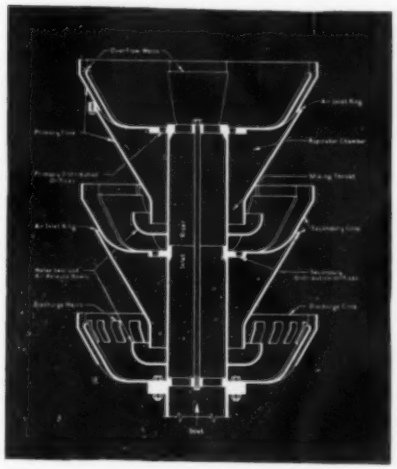
Each stroke of the pump injects a uniform quantity of the standard hypochlorite solution into the main. By connection with the manometer of a venturi tube, the variable speed motor is speeded up by the passage of a larger quantity of water through the meter, or slowed down by a smaller quantity, thus increasing or reducing the number of standard "shots" of the hypo-chlorite solution per minute applied under pressure.

The development of this compact and comparatively inexpensive unit for applying the solution of such standard hypo-chlorite compounds as HTH or Perchloron, is of distinct advantage to small water works where there is objection to handling cylinders of liquid chlorine. The Midget Chlor-O-Feeder is also adaptable for use in swimming pools, on private water supplies, and for the application of any standard chemical solution. It is made by Proportioneers, Inc., 9 Codding Street, Providence, R. I.

Trailer Patrol Grader Has Front Hand Control

By placing the hand control of a trailer patrol forward on the pole, Caterpillar Tractor Co., Peoria, Ill., has converted its trailer patrol into a one-man maintenance machine which can be used behind any make of tractor. The position of the single handwheel, which controls both ends of the blade by means of a shift lever, can be adjusted to be within easy reach of the operator. Further, the handwheel can be raised or lowered to the desired height by changing the setting of the links that extend upward from the pole bracket to support the control box.

Complete information on the design of the Caterpillar patrol grader is found in Circular 1660, and details of the front hand control in Circulars 2855 and 2856.



CROSS-SECTION OF THE MULTICONE AERATOR

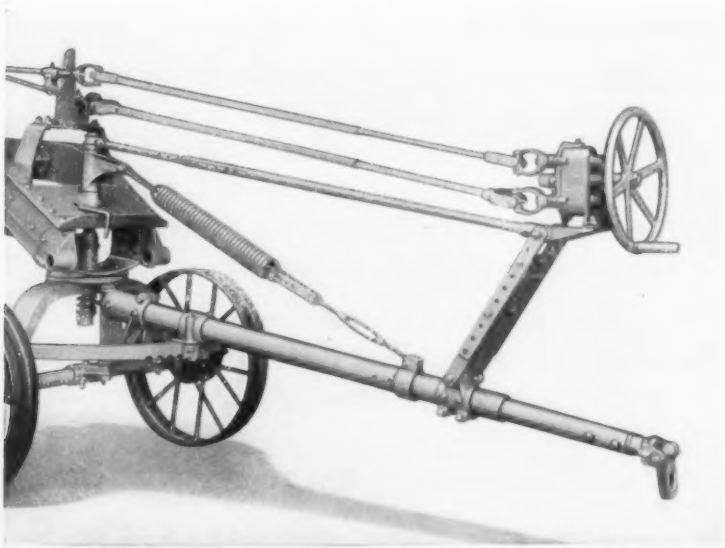
New Low-Head Aerators Occupy Small Space

In the new MultiCone aerator, a low-head, compact unit for the removal or reduction of dissolved gases, the oxidation of iron and manganese and the addition of dissolved oxygen, the incoming water flows into the inlet bowl of the primary or top cone and is discharged into the primary aspirator section through a number of distribution orifices. The jet action of the many small streams of falling water and the shaping of the aspirator section sucks in a large excess of air through a ring inlet located well upon the side of the primary cone.

The greatly restricted mixing throat at the discharge point of the aspirator section increases the velocity of the flow as the water approaches it. The water is thus in a violent state of turbulence during the time it passes through this section. The induced air is thoroughly mixed with the water, and intimate contact is obtained through the mixing throat and water seal.

The water seal also acts in a dual capacity of air release bowl, as the direction of flow is reversed and the water is discharged upward and outward to separate and sweep out the entrained air and gases.

The International Filter Co., 59 East Van Buren Street, Chicago, Ill., manufacturer of MultiCone aerators, states that although highly efficient aeration is obtained in the first stage, the effectiveness of treatment is increased by repeating every step of the process in the secondary cone. Discharging from the air release bowl of the secondary cone, the water passes into the discharge cone and spills over the discharge weirs with a waterfall effect directly into a basin or onto a collecting pan or concrete collecting slab. All sections of the aerator are built of cast aluminum, the sections being joined by bronze spiders and tie rods. The receiving bowls of both the primary and the secondary cones are provided with overflow weirs to divert excess water into the aspirator section if the rated capacity of the aerator should be exceeded.



FORWARD MOUNTING OF PATROL GRADER CONTROLS FOR ONE-MAN OPERATION

Interesting Data on Liquid Chlorine in a Monthly House Organ

Six months ago Electro Bleaching Co. and Niagara Alkali Co., 9 East 41st Street, New York, began the publication of a particularly interesting house organ called "The Pioneer." This 8-page publication contains short, interesting waterworks articles, cartoons, photographs, news items and even a crossword puzzle for your edification and entertainment.

C. H. Hazard is the Editor and he will be pleased to send you copies of "The Pioneer" regularly if you are interested and will forward your name, title and address to him in care of either manufacturer.

Egmont Smith, Jr., Joins Neptune

Egmont S. Smith, Jr., has recently joined the sales organization of the Neptune Meter Co. as Sales Engineer, and wil be located in Texas, working from the Dallas office at 2014 Commerce Street. Mr. Smith completed his studies in mechanical engineering at Southern Methodist University at Dallas and will specialize on gasoline and oil meter installations in addition to sales of the entire line of Trident, Lambert and Red Seal meters for water and other liquids.

INSIST ON GOOD STREET-LIGHTING GLASSWARE

ONLY CAREFUL MANUFACTURING CAN GIVE STRONG GLASSWARE

DO YOU fully realize the importance of strong glassware in keeping down the cost of street lighting? Globes must stand up under rain, sleet, snow, wind, heat, cold—under handling and shock. Cheap glassware can be a very expensive item. When the man responsible for your street-lighting maintenance suggests Gleason-Tiebout, back him up; he knows good glassware.

A fine-appearing ornamental globe—Gleason-Tiebout No. 118 with canopy

Strength in glassware is not something that can be seen on the surface—it is something built into the globe. Back of it is careful manufacturing: careful selection and testing of materials, properly designed and built molds, skilled craftsmanship, scientific annealing. To be sure of strong glassware, you must choose carefully the manufacturer who makes it.

Gleason-Tiebout glassware is made to meet the exacting specifications of General Electric engineers. These engineers will be glad to assist you in planning installations that will meet every requirement.

BETTER LIGHT BETTER SIGHT

GLEASON-TIEBOUT GLASS COMPANY

GT-36

99 COMMERCIAL STREET, BROOKLYN, N. Y.

When you write for that catalog, kindly mention THE AMERICAN CITY

Outdoor Lighting

A Section of *The American City*
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings

Visible Police Would Reduce Night Accidents

A PROFESSIONAL and distinctly important viewpoint on highway lighting is given by two police officers in *New Jersey Municipalities*. Heretofore it has been customary to urge this lighting on the grounds of visibility for those traditional combatants—driver vs. driver, and pedestrian vs. driver—so that each can see the road and each other. The new proposal, or this different proposal, is that the visibility of police officers by night, as well as by day, will influence the public's driving in the direction of safety. The following remarks are by Colonel Norman H. Schwarzkopf, Superintendent of New Jersey State Police:

To the police this matter of highway lighting is of much graver importance in their enforcement activities than would appear at first glance. You, as a driver, know that whenever you may be riding along the highway and you recognize in the approach of a motorcycle or automobile the presence of a police officer, you instinctively react by lifting your foot, however slightly, from the accelerator. . . . Adequate highway lighting makes the officer visible for many times the distance that he is visible under present existing conditions and multiplies the effectiveness of his preventive effect. . . .

Furthermore, the absence of bright headlights, or the use of the lower beam lights, so greatly increases visibility that the observations by the police are greatly increased, and again the effectiveness of your police is multiplied.

The ordinary hazards of the road influencing safety conditions are obstacles due to construction, or repairing breaks or washouts in the road, cars without tail-lights, slow-moving trucks, vehicles approaching from side roads, pedestrians walking along the highway, unexpected grade crossings or road crossings, and those other things with which motorists are thoroughly familiar. None of these are dangerous hazards during the day.

Probably the greatest preventive effect that can be produced is accomplished by the patrolling of the highways by uniformed police, whose duty is not alone the apprehension of malicious violators, but also the correction and education of the public, and the inspiration of caution by the public, just by their presence. The uniformed police officer patrolling the highways on a motorcycle in full view of the public is most effective in exercising this preventive effect. The darkness of night, however, not only obscures the uniform of the officer, but also adds so many perils to the already dangerous assignment of riding a motorcycle that most departments have supplanted motorcycles with automobiles for night patrols. The uniforms of officers in cars, of course, are not as noticeable as on a motorcycle, and the real preventive effect of a patrol by an officer in uniform is lost. Highway lighting would justify the maintenance of motorcycle patrols by uniformed officers at night as well as in daylight. . . .

The average motorist is well intentioned, a safe driver, and a considerate driver when he has his mind on his driving and on his relation to other motorists on the road, and his usual infractions are due to thoughtlessness or lack of concentration on the immediate problem of the control of his motor. Putting him in the presence of uniformed police is unquestionably the greatest concentrating power on the business in hand that we can provide, and if the public were constantly traveling within the effective view of police officers, both day and night, accidents could be reduced to so great a degree that the loss of life would practically be eliminated.

A municipal police officer concurs in this exceedingly interesting assertion. "If the police department," says Arthur Colsey, Chief of Police of Camden, "is to be effective as conditions demand, the sphere should be enlarged so that the police officer is visible both at night and day."

Chief Colsey defies contradiction that darkness is a contributor to crime and, further, that the elimination of darkness not only eliminates crime to a great extent, but effects an immediate reduction in the number of accidents as well. In complimenting the quality of lighting along the newer highways of the state, he says: "These present lighted traffic circles should be but the buttresses of a bridge of highway lighting."

Then he points to the necessity of seeing *in time*. Of what use are directional, let alone warning, signs, if they are missed or read too late for action? In the daytime hours most of these signs are visible to the motorist; "but at night on our inadequately lighted highways and roads many of these signs are not visible, either in their entirety or until the motorist is so close to the sign that he must either stop abruptly to read them or change his direction. Automobile drivers from other sections, unfamiliar with our traffic divisional devices, look for these signs and rely upon them to direct them on their trip. A well-lighted highway where these directional signs can be noticed and read at adequate distances is indeed a great asset to any community."

Mercury-Vapor Lamps

FOUR new-type lighting units, incorporating G-E high-intensity mercury-vapor lamps and representing a special lighting demonstration of the latest practical high-intensity street and highway luminaire, now illuminate the entrance of the General Electric Building in New York City.

Two similar installations around the new Post Office at Lynn and in Brooklyn's Albee Square have been sponsored by local civic groups and lighting companies. These units, which resemble ordinary street lights in appearance, furnish light from a combination of mercury and incandescent lamps, with an efficiency approximately 50 per cent

Voters judge your administration by the good it does

They are

GRATEFUL

for the Security of

Well-lighted Streets

Your Citizens Like the Protection and Comfort of Light

AN evening conference, an unexpected business trip—and you are suddenly aware that your wife and children need protection while they are home alone—while they walk down to the neighborhood theater. With you away, light can give that protection.

Bright, cheerful streets are safe streets. Stick-up men, annoyers of all sorts, real and imaginary, slink away from light—every street light in your city is an added policeman. Don't begrudge the women, yes, even the men, of your city this comfort and security. They are grateful for it.

If your administration recommends and installs good lighting, and points out its advantages, you will win the loyal support of your citizens. You are protecting motorist and pedestrian from accident and suffering; you are helping business by encouraging shopping; you are providing the comfort and security that women so appreciate. General Electric, Schenectady, New York.

You pay for good street lighting whether you have it or not . . . with inadequate lighting you pay in accidents, crime, and death.

500-127

GENERAL ELECTRIC

Do you mention THE AMERICAN CITY? Please do.

higher than that afforded by usual lighting installations. They will operate from an ordinary a-c series or multiple street-lighting circuit.

Each luminaire includes a 400-watt high-pressure mercury-vapor lamp, mounted base down, and above it a 200-watt incandescent lamp and suitable reflector. The combined lamps have an output of 17,500 lumens, giving the unit an over-all efficiency of about 29 lumens per watt.

Engineers expect that the major field for high-intensity mercury-vapor lights in street-lighting activities will be for heavy traffic thoroughfares and business sections where white-way lighting is used.

When the mercury-vapor lamp is turned on, it glows at first with a low-intensity, low-pressure arc, and operates at 20 volts and 5 amperes. The light is then pale blue. The light output builds up rapidly during the first few minutes of operation, and the lamp soon reaches stable operation at approximately 155 volts and 2.9 amperes. The light from the bare lamp is intense, and appears white because of its brilliance.

Outdoor Games at Night

PEOPLE do not have the time to attend day games, says the General Electric Co., that they did in the past, and they welcome the opportunity to indulge their love of sport at night. Here are some instances:

Albert Lee, Minn.; night football games box $800 compared with $100 from day games.

Watertown, Wis.; the Soft Ball Association has had two successful seasons of night games.

Erie, Pa.; school games average 3,563 persons at night, and 700 in daytime.

Yoakum, Texas; high-school football draws 800 by night, and 200 by day.

The Atlanta Baseball Corporation played 67 day games averaging 2,211 persons, and 10 night games averaging 3,723, with more women present at night than in the day.

Dunkirk, N. Y., high-school games drew 390 before floodlighting and 1,050 with it.

Crosley Field in Cincinnati has been equipped for major-league baseball at night, and the lighting is appropriately twice as bright as on any other diamond —70 footcandles. The system includes 100 enclosed and 252 open-type units grouped 50 to 140 kw per 100-foot tower; total load, 1,050 kw, including 10 per cent over-voltage for the lights.

Just to show that latest practice is frequently old stuff now performed successfully, it is pointed out that night baseball was first tried in 1883 in Fort Wayne, and again in 1909 on the same Cincinnati field that was lighted this year.

Floodlighting Dark Courts

IN cities where crowding and generally unsanitary and uncomfortable conditions prevail in multi-family districts, one of the greatest needs, next to entirely new houses, is adequate daytime lighting. Many of the rooms, as is well known, are simply dark chambers. A successful experiment that was made in the Central Park district of New York City might turn out to be a practical palliative until sunlit homes replace the dark ones in the congested districts. Installing floodlights in the airshafts of a certain apartment house raised rents from $35 per month to $85. The difference in values, symbolical of greater habitability, are illustrated by the accompanying before and after views. Incidentally, where there are municipal plants, there would be a little more off-peak load for them. Clifton E. Smith, New York architect, planned it.

FULL DAYLIGHT, WITHOUT FLOODLIGHTS (LEFT); WITH FLOODLIGHTS (RIGHT)

New Street-Lighting Installations

AFTER seven years of reduced street lighting, the city of Buffalo has decided to restore $100,000 worth, or two-thirds, of its curtailed lighting, to start July 1. As a contrast to the mere idea of curtailment in this lively field that is so closely woven with that of traffic, and consequently of accidents and safety, the General Electric Co. furnishes a number of bright items of news:

Elmira will increase 300 of the downtown ornamental lights and 456 residential lights from 2,500 lumens to 6,000 lumens.

North Adams, Mass., has installed 16 sodium lamps along a 4,000-foot stretch of West Main Street, making one of the longest sodium lighting installations in any municipality. It is said that both officials and citizens call it their Golden Highway.

Stamford, Conn., has authorized the electric company to install 205 luminaires with light alabaster rippled globes and arranged for use with dome refractors.

Ironton, Ohio, is adding 120 luminaires with medium alabaster rippled globes, mounted on The Electric Railway Equipment Co. tubular steel poles and ornamental brackets.

Richmond, Ind., is installing a complete new street-lighting system, consisting of 236 The Union Metal Manufacturing Co. steel standards with luminaires equipped with alabaster rippled globes and Sym-Etric dome refractors.

IRONTON STAMFORD

OMAHA PARK SYSTEM HAS LOWEST RECORDED MAINTENANCE COST

March 20th, 1935

Ford Motor Company
Omaha, Nebraska

In answer to your inquiry relative to our fleet of Ford equipment which we use in maintaining the Omaha Park system, we wish to advise we have eight 1935 V-8 units and 21 older Ford units. We only operate two units other than Ford. With these we maintain 45 separate tracts having a total of 2160 acres, which are widely scattered throughout the city of Omaha. These include

22 children's playgrounds — 25 tennis courts
6 swimming pools — 7 park lakes
5 golf courses

You may be interested to know that the maintenance cost of these parks is less per acre than of any city on which records are available. We are very well satisfied with our Ford equipment and their low operating cost contributes materially to our ability to establish such a good record of low maintenance cost.

Since I have been Commissioner we have enlarged our park operations considerably and it has called for additional automotive equipment. This has all been Ford equipment and if we purchase additional equipment—it will be Fords.

Yours truly,

Frank E Frost
Park Commissioner

Park Commissioner Credits FORD EQUIPMENT with Important Part in Low Cost of Maintenance

THE letter reproduced in this advertisement tells its own story of the satisfaction Ford V-8 equipment gives to the Department of Parks and Public Property of the City of Omaha. This case typifies the service Fords are rendering in all departments of municipal governments.

Ford V-8 Trucks and Commercial Cars are serving economically and reliably in almost every municipal and county department . . . as fire engine units, dump trucks, sanitary trucks, street sprinklers, police patrols, scout cars and a wide range of other purposes.

Any Ford dealer will be glad to demonstrate V-8 Performance, V-8 Economy and V-8 Reliability in an "on-the-job" test. Your request for such a demonstration involves no cost or obligation.

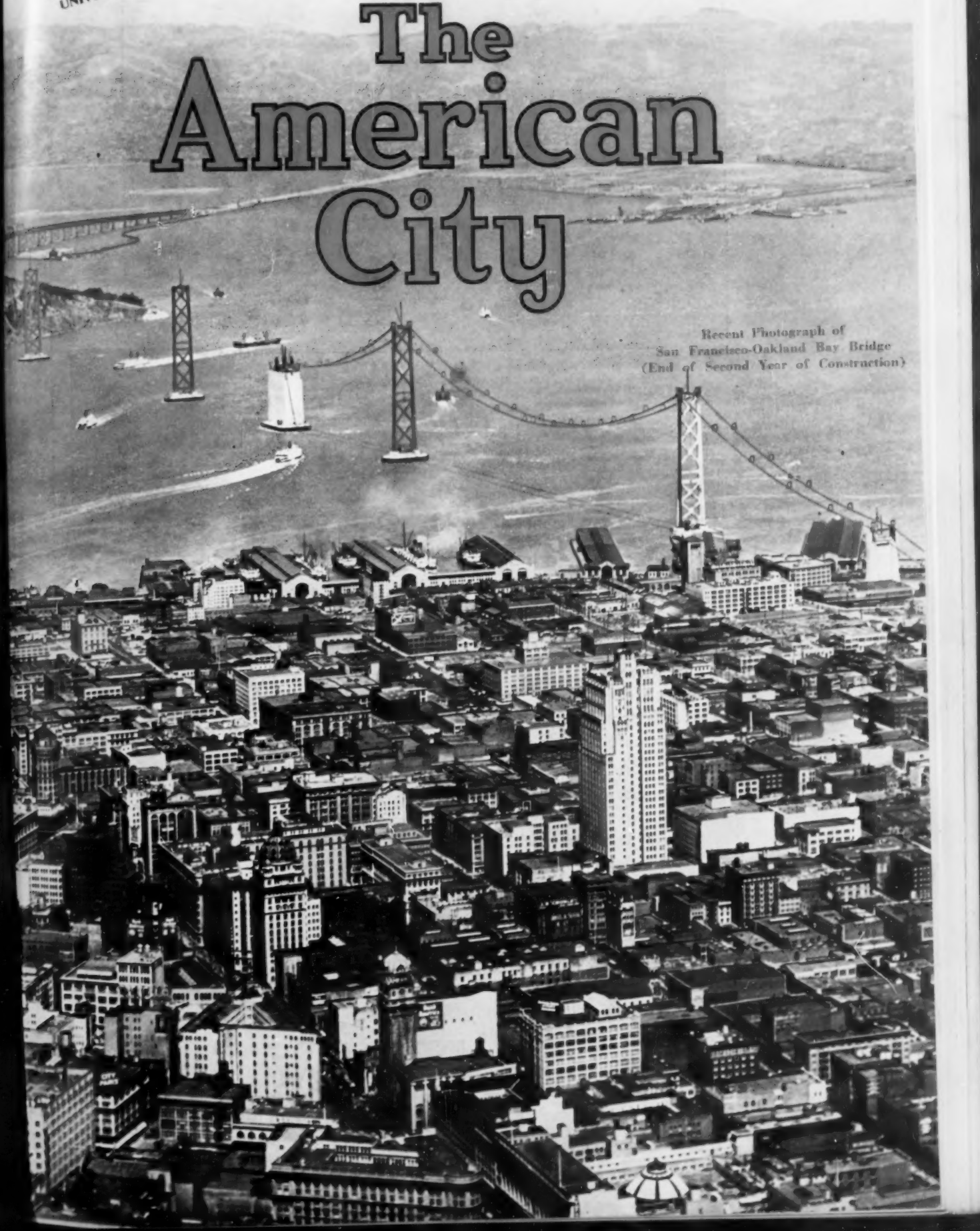
FORD V-8 TRUCKS AND COMMERCIAL CARS

PERIODICAL ROOM
GENERAL LIBRARY
UNIV. OF MICH.

AUG 7 1935

AUGUST, 1935

The American City



Recent Photograph of
San Francisco-Oakland Bay Bridge
(End of Second Year of Construction)